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This heavy freight train on the Norfolk & Western, capable of making a mile a minute, offers a picturesque contrast to the covered wagons that once crossed the plains at a little better than a mile an hour.

CAVALCADE OF THE RAILS

By

FRANK P. MORSE

Illustrated

1940
New York
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Credits

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INTRODUCTION

The Romance of the Right-of-Way

When Eric the Red was reef-storming through fogs and gales off our Atlantic Coast and ancestors of aloha song writers were colonizing coral atolls in the South Pacific, this nation's first citizens, like the present-day population, were wrestling vigorously with the problems of transportation. Floating logs, ultimately hollowed into the genesis of the birch-bark canoe, probably provided the earliest fast traffic facilities for redskin forerunners of modern tourists. Logs, rafts and canoes eliminated only a minor percentage of the Indian traveler's troubles. It was still necessary to work out overland connections for his trips by water. The successful accomplishment of this particular task must be credited to four-footed wanderers. The best paths through the forests and the most reliable trails across the plains were made by buffalo and deer. As the centuries marched on, the roads that represented wild animal surveys were merely worn deeper by the moccasins of restless tribes moving from river to river and from ocean to inland sea.

These same routes between waters were utilized by the pioneer adventurers who crossed the Atlantic in the wake of Columbus. When Hernando de Soto walked to his death in 1542 he followed footprints of savages that led to the Mississippi. His armor-weighted body, coffined in a scraped-out log canoe, was sunk in the deepest channel of the mighty river he discovered by chance while seeking gold. Père Jacques Marquette, the second white man in history to gaze on the Father of Waters, began his trek to the mouth of the Missouri 130 years later, along one of the best-known Indian highways in history. This "Portage Path" between the headwaters of the Chicago and Illinois rivers linked the shores of the Great Lakes with the banks of the Mississippi. René Robert Cavelier, Sieur de La Salle, en route to the delta to claim an empire he called Louisiana in honor of *Le Grand Monarque*, marched around the falls of the Ohio along the famous "Trace St. Louis," afterward known as the Vincennes Trail. The news of his assassination in Texas and the body of Father Marquette, who defeated him in a race to find what they both supposed was a direct water route to China, were carried back to Canada over original deer paths traveled for ages by the Iroquois and the Algonquins. These wild-life passageways through the wilderness were picked a few hundred years later by the engineers who laid out our pioneer railroads. That is why the saga of the locomotive goes back centuries beyond the birth of the headlight. It retraces the steps that led from trails to rails.

The most romantic caravan course in frontier annals, the famous Santa Fe Trail, was a well-marked route to the American Southwest when Alvar Nuñez Cabeza de Vaca, the first white man to set foot on this historic road, launched his quest for the Seven Cities of Cibola in 1535. This credulous Spaniard ascended the Rio Grande and followed a broad highway created by buffalo which led to the valley of the Arkansas. The kingdom of fabulous wealth which he sought was merely a straggling group of seven Zuñi Indian pueblos in western New Mexico, but the tale he told when he reached the Gulf of California created a decided sensation. It revealed to the Spaniards in the south that a vast unexplored territory stretching far north of Mexico awaited their attention. As a direct result, various expeditions soon crossed the Rio Grande. Vásquez de Coronado and Luis de

Moscoso traversed the plains of Kansas and headed for the Rockies. Six years after Nuñez Cabeza de Vaca reported his adventures, and twenty-three years before the first white settlement in America was established at Saint Augustine, Florida, Spaniards from Mexico stumbled on a flourishing adobe metropolis south of the Rockies which they described as a center of Indian culture. More than half a century later, Don Juan de Onate visited the mysterious city and called it El Teguayo, a Spanish version of Tegua, the name of the Indian nation that ruled the area. Some time between 1600 and 1610 the acquisitive whites took over this ancient community, renamed it San Francisco de la Santa Fe and settled down to their familiar job of colonization and exploitation.

More than two centuries rolled by before Yankee traders projected themselves into the Santa Fe picture. The first to arrive, in 1804, was La Lande, a French Creole agent for a wholesale merchant named Morrison in Kaskaskia, Illinois. He was followed a year later by James Pursley, a carpenter from Bardstown, Kentucky. Pursley fell in love with the quaint community and never returned to the States. La Lande also lingered indefinitely. There was a reason for his permanent expatriation. He quietly appropriated the money he received for the merchandise entrusted to his care. Armed with this capital, he established himself in business and, contrary to copybook maxims, became a successful, happy and extremely wealthy Santa Fe citizen. In February, 1807, Lieutenant Zebulon M. Pike of the United States Army, detailed on a peace mission to the Kansas and Osage Indians, mistook the upper Rio Grande for the Red River, crossed the stream and built a fortification south of the border. A heavy force of Spaniards discovered this activity and invited the man for whom Pike's Peak was named to visit Santa Fe, where he was asked to explain his invasion of Mexico. He was treated with the utmost courtesy and escorted across the line to the United States. He returned with a glowing report on the adobe capital. He estimated the population at 4,500, described quaint little streets only twenty-five feet wide, stressed the hospitality he had received from rancheros and was unreserved in his enthusiasm about the possibilities of trade. This started the stampede. In 1812 the first big American caravan reached Santa Fe. The twelve adventurers who made the trip were arrested by the Spaniards, jailed as spies and held prisoners until 1821, when Iturbide established the independence of Mexico. The next heavy freight carriers from the States were luckier. This party, headed by a Captain Becknell, arrived only a few months after their less fortunate compatriots, but they were well received and sold their goods at a very big profit. As a result of their experience envious rivals began a rush for Santa Fe.

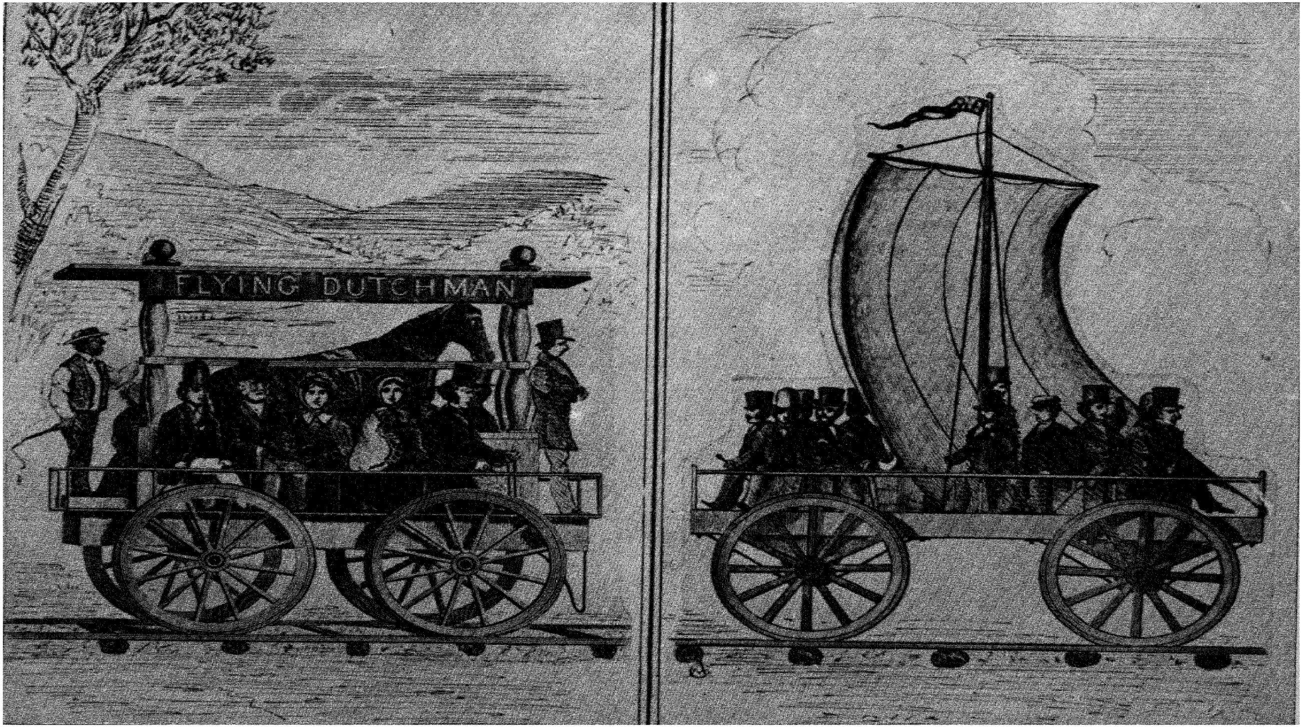
The first goods for the new market were loaded on pack mules. These slow-moving animals were driven straight west from the Missouri River to the Rocky Mountains, and then south to Santa Fe over the old Taos Trail. In 1821, Captain Beard, one of the dozen Americans held prisoners in Chihuahua from 1812 to 1821, headed a second expedition to the Southwest. When he reached Coches, on the upper Arkansas near the present site of Dodge City, he decided to save time and mileage by striking straight across country. He followed the left bank of the Arkansas until it turned to the northwest, crossed the river and headed southwest to Raton Pass. This so-called dry route over the Cimarron was approved by most of the pioneer traders. In 1824 ox-wagons followed the pack mules. From 1848 to 1872 the stagecoach flourished. Then came the railroads, various new El Dorados and possibilities of more profitable trade with the Pacific Coast. Stephen Foster's "Oh, Susanna" soon drowned out Sebastien Yradier's "La Paloma," and unromantic freight trains followed the trail of the covered wagon.

In the half-century of its full glory the old Santa Fe Trail provided unceasing inspiration for writers of colorful fiction. Its authentic history bristled with stories of bravery. Almost every mile of the long stretch from Kansas to New Mexico drank pioneer blood. Kit Carson, Buffalo Bill Cody, Uncle Dick Wooton, Lucien B. Maxwell, Tom Tobin, James Hobbs and Old Bill Williams rode its length, guiding inexperienced drivers through shallow river bottoms and across wide prairies, shooting buffalo from the saddle for roadside camps, and fighting off Kiowas, Comanches, Pawnees, Cheyennes, Arapahoes and other local red citizenry afflicted with an incurable craving for Yankee scalps. Independence, Kansas, was the original jumping-off point for the Santa Fe Trail. After the Mexican War, when trade began to boom, the overland commerce shifted to Westport Landing, an important early Missouri River steamboat town, better known today as Kansas City. In 1824 the traders turned from hoofs to wheels. The first wagons, manufactured in Pittsburgh, held a ton and a half and were drawn by eight mules. As traffic increased, wagons with twice the original capacity and pulled by a dozen oxen came into the parade. These heavier vehicles were the original prairie schooners. They had one disadvantage. Under Mexican customs regulations, every load of goods, regardless of value or weight, had to pay a duty of $500. Yankee ingenuity matched Mexican avarice. When Santa Fe loomed in sight the traders stopped their caravans, transferred the contents of three wagons to a single prairie schooner and, to avoid detection of the trick, burned two of every three vehicles they had driven across the plains. Moreover, some of the wagons were equipped with huge, hollow axletrees in which much of the proceeds from sales of merchandise was hidden before the homeward trek began. This enabled the Americans to sidestep a heavy Spanish export duty on gold and silver.

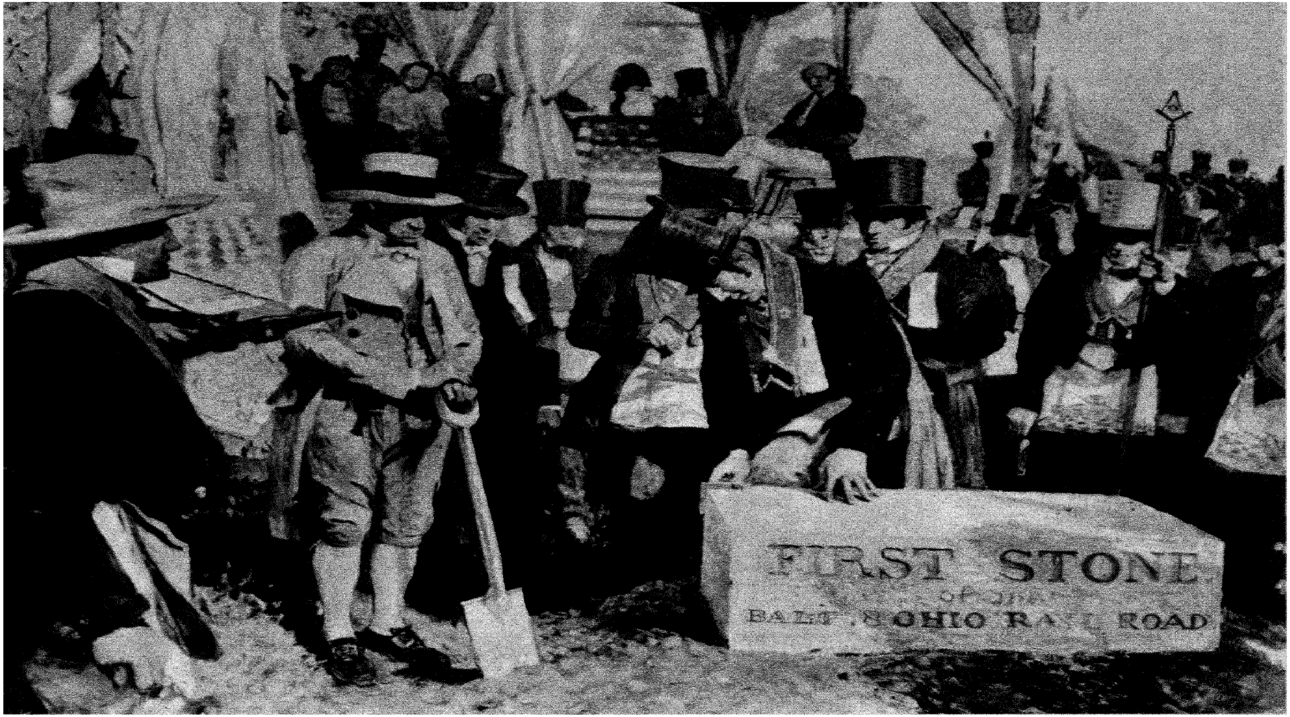
The trip to Santa Fe required three months of difficult and dangerous travel, but the welcome that waited at the end of the trail repaid all toil and discomforts. The Yankees stopped their caravans just outside the city and adorned themselves in party clothes before making a dramatic entrance. The sleepy old town awoke with a rush when the heavy wagons approached to the accompaniment of boisterous shouting and loud cracking of whips. This last-minute activity was part of the show the traders invariably staged to impress dark-eyed señoritas. When the first echoes of the distant uproar reached their ears, idlers in the Santa Fe plaza roused the city from its siesta. "*Los Americanos!*" they screamed. "*Los carros! La caravana viene!*" The visitors from the States were welcomed with open arms by the pueblo population and elaborately entertained. A fandango in their honor was staged every evening. These dances invariably began at nine o'clock. When the church bells tolled that hour the señoras and señoritas, heavily jeweled and clad in gaudy attire, made an impressive and colorful entrance. They wore graceful skirts and long, loose scarfs were wrapped about their upper bodies and heads. Formality was forgotten. All classes, rich and poor, threw themselves wholeheartedly into the festivities. Both men and women were exceedingly graceful dancers. The Spanish and Mexican belles were at their best in a swaying, close-clinging waltz that horrified the gringos. The traders, accustomed to nothing more intimate than Kansas square dancing, were honestly shocked by the languorous measures of Santa Fe fandangos. Yet, while regarding the waltz as a subtle invention of the devil, they observed with entire nonchalance the all-night drinking and the wide-open gambling in which their hosts indulged to their hearts' content and the limit of their available cash.

The covered wagon, the prairie schooner, the stagecoach and even the much maligned horse and buggy were minor factors in the freight and passenger traffic of early American history. Boats without benefit of steam dominated the youthful period of our transportation industry. Sailing ships took colonial products across the seas and cut the cost of living in cities that boasted deep-water ports. Pioneer settlers along the upper waters of the Mississippi and its tributaries shipped corn, bacon, flour, feathers and fur down the river in flatboats, keelboats and pirogues, and exchanged this merchandise in New Orleans for coffee, sugar, tea, spices, cloth and various other lightweight articles. Heavy commodities, of course, could not be moved upstream. The return trip required unceasing toil with oars and poles against the pressure of the current. Most of the heavy freight went south on rafts, which were sold for firewood at the end of the trip. The crews of these deserted craft journeyed home on foot along the old Natchez Trace which led to Illinois and other Northern state trails. The flatboats and rafts carried their loads long after the birth of steam. Abraham Lincoln piloted one of them from the Sangamon River to New Orleans nearly a quarter of a century after side-wheel packets entered the competition. They were still flourishing when Mark Twain abandoned the wholesome if slightly monotonous life of a Mississippi River pilot.

Interior cities, villages and farms suffered keenly from lack of water facilities. In 1825, wheat that was traded at 25¢ a bushel in Illinois cost 87¢ in Virginia. Galena housewives paid $10 a barrel for flour that sold at $5 or less in St. Louis. In the first quarter of the nineteenth century shippers paid $140 a ton on freight between Philadelphia and Pittsburgh. The federal government was granted a special and comparatively low rate on shipments to the West. Washington paid a mere $100 a ton on supplies for the Indians. Freight charges for wheat which moved from Buffalo on Lake Erie to Albany on the Hudson were exactly three times the original value of the shipment. (The present cost per ton is less than a cent a mile.) That is why Midwestern commerce was diverted from New York and Philadelphia and sent to New Orleans by boat. However, the blessings of river connections were not entirely unmixed. In 1817 freight charges were $40 a ton from Pittsburgh to New Orleans by river, but they jumped to more than $80 a ton when the boats turned upstream for the run from New Orleans to Pittsburgh. These stubborn facts called for careful consideration a century and a quarter ago. Two outstanding needs confronted riverless inland cities. Their heavy freight business required navigable streams and freedom from handicaps on inbound traffic. Both demands, in the opinion of experts, would be met by digging cross-country canals. George Washington, ranked on several counts as America's first citizen, was an outstanding pioneer in this deep-ditch activity. The towpath route he surveyed to the west along the left bank of the Potomac is now part of a government park in the city that is named for him. Innumerable other projects got under way in the next half-century. On July 4, 1817, ground was broken at Rome, New York, for a waterway from Albany to Buffalo. Eight years later, on October 26, 1825, the new Erie Canal connected the Great Lakes of the Middle West with the Atlantic Ocean, via the Hudson River. Booming cannon along the entire 428-mile stretch, from the beach at Buffalo to the port of New York, announced the triumphant progress of the first barge to break the ribbons. Governor De Witt Clinton and other celebrities were featured on the passenger list for this initial trip and received a joyous welcome from the exulting metropolis of the Empire State.


FLYING DUTCHMAN

Horsepower via a treadmill and sails for rails set the stage for the birth of the steam locomotive.


FIRST STONE
of the
BALT. & OHIO RAIL ROAD

The birth of the Baltimore & Ohio on July 4, 1828, with Charles Carroll of Carrollton at the handle of the spade.
From a painting by Stanley M. Arthurs.

Mule- and horse-drawn boats were out of date before the last canal was dug. They were really doomed on July 20, 1786, when John Fitch conducted an unsuccessful steamship experiment on the Delaware River. Like most inventors who have evolved valuable ideas, Fitch was rewarded with jeers, and died a broken-hearted man in the wilds of Kentucky. His boat, as it happened, was entirely practical. Twenty-one years later Robert Fulton's *Clermont* paddled its way up the Hudson from New York to Albany and steam navigation came into its own. The *New Orleans*, first mechanically propelled craft on the Mississippi, ran downstream from Pittsburgh to the city for which it was named, in the final weeks of 1811. The first up-river trip, from New Orleans to St. Louis, was made by the *General Pike* in 1817. Thereafter, until railroads ended their monopoly, a long list of racing steamboats, from the *Comet* to the *A. L. Shotwell*, and from the *Eclipse*, fastest packet of them all, to the *Natchez* and the *Robert E. Lee*, created material for romance between the banks of Old Man River. In 1819 the steamship *Savannah*, named for the port from which she sailed, made a successful crossing to Liverpool and created a sensation in English waters. As she moved majestically to her anchorage with smoke pouring from her funnel, a British revenue cutter hoisted all sails and raced alongside to rescue the Yankee crew. Convincing proofs were required to persuade the cutter's captain that the new liner was not on fire. The *Savannah's* trial trip did not inspire an immediate shift from sails to steam. Two decades later this country's dominant position in the transatlantic trade was won by the famous Yankee clippers. These full-rigged, fast-sailing, rakish craft, averaging better than fifteen miles an hour, were capturing blue ribbons when the *Belle of the West* made the 1,440-mile run from New Orleans to Louisville in

6 days and 14 hours. Eleven years later, in 1853, the *Eclipse* covered this course in 4 days and 9½ hours.

The first Fitch demonstration should have convinced contemporary traffic managers that steam engines were headed for highways and ocean lanes. Yet twenty-one years were wasted before Fulton obtained capital for his river experiments, and another twenty-one years passed into history before ground was broken for the first American railroad. These delays are peculiarly puzzling because the possible utilization of water expansion was much discussed in the century that preceded the railroad era. Steam power was, as a matter of fact, an old story when the three wise men from the East journeyed to Bethlehem. The first steam engine mentioned in history opened the door of a temple in ancient Greece. An Italian scholar, Della Porta, perfected a steam pump while Columbus was steering for the Caribbean Sea. Two and a half centuries later James Watt developed the ancestor of all modern steam engines. Nicholas Joseph Cugnot, a French artillery officer, built in 1769 what was probably the original locomotive. It ran on dirt roads, a fact that may explain its early wreckage. Paris experts promptly pronounced the idea entirely too dangerous for further consideration. The Cugnot theory was tested in 1784 by William Murdock, an enterprising British mechanic. He staged a trial run on a dark night in a narrow lane that led to the village church. The boiler of his model was heated by a rather small spirit lamp. Nevertheless, it sent the tiny engine spitting and sputtering and snorting down the lane. At this far from psychological moment the local clergyman stepped into the picture. One horrified look convinced him that the devil was loose, with all his weapons of evil. The reverend gentleman fled to the sanctuary of his church, locked himself in, and offered up fervent prayers for the souls of his congregation. Richard Trevithick, foreman of a tin mine in Cornwall, England, built in 1804 the first locomotive designed for rails. In 1814 George Stephenson evolved a really practical engine, but the roar of its escaping steam alarmed the natives. The inventor, seeking a remedy, turned the surplus vapor into his smokestack and thus discovered by accident the value of a forced draft. This expedient is utilized today to increase the power and speed of all steam locomotives.

Our own Yankee inventors were singularly slow to grasp the possibilities of steam. However, the Fitch demonstration in 1786 started John Stevens on experiments which ultimately led to the building of a great railroad. At a much earlier date, probably in 1804, Oliver Evans of Philadelphia decided to make a simultaneous attack on land and water. He built a wheel-mounted, steam-propelled scow, ran it at top speed down the street from his factory to the water front and hurled it into the Delaware. The roar of his engine, the fire it vomited and the amazing splash the scow made when it hit the river put a terrific strain on Quaker City nerves. So, too, did the name of the monster. Evans called his weird double-action contrivance the *Oructor Amphibolis*. Just a quarter of a century after this crime against the peace and dignity of Philadelphia was committed, Peter Cooper turned out the *Tom Thumb*, and Miller and Detmold evolved the *Best Friend of Charleston*. At the end of another twenty-five-year period powerful American locomotives with driver flanges screaming against the rails would be pounding fishplates along a main line to prosperity with rights over every wheel against them.

And thus began the dawn of America's mighty rail empire.

CHAPTER I

The Lion's First and Last Roar

Horatio Allen, twenty-five-year-old mechanical engineer, hesitated a few seconds before he stepped up on the platform of the iron monster for which he was responsible and placed his hand on the throttle. There was reason for his momentary pause. He had refused to accept a companion for the trip he was about to make because he believed he was standing in the shadow of death. He saw no reason to involve anyone else in the fate he faced. He preferred to take this pioneer ride alone.

Not that any volunteers pressed forward. The curious crowd which gathered around the daring experimenter that Saturday morning, August 8, 1829, entertained an acute fear of the newfangled contraption Allen had brought back from England, which had been dubbed the *Lion* because the artist entrusted with the finishing touches had painted on its face a glaring red portrait of the king of beasts. It was the first commercial locomotive ever seen on American soil. It had been purchased by the Delaware & Hudson Canal Company for the new railroad built to connect the company's canal terminus at Honesdale, Pennsylvania, with its coal mines at Carbondale, sixteen and a half miles away. And the city fathers of Honesdale had not only declared a holiday in honor of the event but had borrowed a cannon to provide added noise for the occasion. The cannon was noisy enough, but unfortunately it exploded, shattering an arm of Alva Adams, one of the firing squad.

The *Lion* snorted and quivered and hissed more ferociously than the animal for which it was named. Allen steadied himself behind the boiler and peered down the track ahead. The new road, built of hemlock timber earlier in the year, had cracked and warped under hot summer sunshine. There were just three hundred feet of straight line in sight. After that short stretch the road turned and crossed Lackawaxen Creek at a dangerous angle and on trestlework that towered thirty feet above the water. The crowd was willing to give liberal odds that this twisted woodwork would collapse under the strain and send the *Stourbridge Lion* to a spectacular end.

Allen, as he eased his steam control less than a notch, was inclined to string his wagers with the crowd. He couldn't quite decide between a burst of speed and a conservative crawl. On an impulse, feeling that it would be better, if the worst impended, to end everything in a blaze of glory, the young engineer jerked the *Lion* wide open and took the bridge on high. As the first locomotive in history to turn a wheel on a commercially built American railroad disappeared down the track, the big assemblage cheered wildly, the fireworks were set off and the cannon burst. And then, even before a surgeon could trim off the remnants of Mr. Adams' arm, the cry of "Here she comes" was heard from the spectators. After running about three miles, Allen had reversed his engine and was flying back. A few minutes later the first professional to pull a locomotive throttle on the Western Hemisphere stepped off the platform and into the hall of fame.

He did not take the *Lion* with him. That product of a British factory could move its own weight down the warped and twisted track, but it could not move heavy loads. Much testing and tinkering convinced the Delaware & Hudson management that the metal beast from overseas was a total loss. When a shipment of anthracite was made on October 9, 1829, over the shaky railroad between mine and canal, the "first locomotive" was quietly rusting away. It served for a brief period to frighten children from the near-by countryside, but only a part of it was preserved for the curious eyes of museum visitors. The original boiler and wheel tires, one cylinder and one walking beam are now on display at the Smithsonian Institution in Washington.

The right-of-way over which Horatio Allen made his famous run was the third line of rails built in the New World. The real ancestor of America's greatest transportation activity was the Quincy Railroad, better known later as the Granite Railroad. This project was chartered by the Massachusetts legislature on March 4, 1826. It came into existence because patriotic New Englanders felt an urge to commemorate the battle of Bunker Hill. They planned the memorial in 1823. Two years later the cornerstone was laid by Lafayette, and Daniel Webster delivered an oration that has become an American classic. When actual construction began, the builders discovered that the granite blocks were entirely too heavy for hauling over the dirt road between Boston and the quarries. They solved their problem when they laid out what they proudly described as "the first railroad in the United States."

This claim to fame was later disputed by other pioneer roads. The Granite Railroad, they contended, was never a passenger carrier. That stigma was eliminated in the little road's forty-fifth year. When 1871 rolled around, the Old Colony Railroad Company bought the Granite as a main line addition and inaugurated passenger service between Boston and Quincy. Also, for the record, it should be noted that the line built to help commemorate a battle earned a second claim to distinction. It staged the first fatal railroad wreck in American history. In July, 1833, after six years of operation without accident, the management permitted four visitors from Boston to return in an empty. While the train was being dragged up an inclined plane by a stationary engine, the rope broke, the car ran away and the first four American deadheads ever passed by an operating department were hurled over a forty-foot cliff. Three of the party were seriously injured and one man was instantly killed.

America's second experiment with crossties, which followed close on the heels of the first, was the Mauch Chunk Railroad, built from the Lehigh River to the Summit Mines, near Carbondale, Pennsylvania. This little line was only 9 miles long, but it climbed a grade of 935 feet in that short distance. The builders overcame a part of this rise by constructing an inclined plane, 2,100 feet long, from the bank of the river to the main roadbed 225 feet above. Six cars at a time, heavily loaded with coal, moved easily and swiftly on wooden rails faced with iron strips from the mouth of the mine over the long pull downgrade to the top of the plane. They were lowered to the river, one at a time, in a little more than three minutes for the six descents. The empties were pulled back to the mines in trains of three cars to a mule, at an average speed of four and a half miles an hour. This was not a bad record for a railroad built in two months and three days at a cost of only $27,000.

America's third railway, the original Delaware & Hudson, did not retain for any considerable length of time the honor of paying wages to the nation's first locomotive engineer. Early in 1829 Horatio Allen was lured down South to direct the building of a line that ran neck-and-neck with the Baltimore & Ohio for the right to call itself America's oldest passenger railroad. This vigorous contender was the South Carolina Canal & Railroad Company, chartered on January 30, 1828, and authorized to lay rails from Charleston, on the Atlantic Coast, to three inland communities, Camden, Columbia and Hamburg. When construction actually began, the natives shortened the name of the corporation. They called it the Charleston & Hamburg.

Chief Engineer Allen's faith in locomotives was not shattered by his adventures behind the boiler of the *Stourbridge Lion*. He attended a Charleston & Hamburg board meeting on January 14, 1830, and scoffed at all talk of horses or sails. His convincing arguments were rewarded when the directors voted in favor of his recommendation and gave New York's West Point Foundry an order to build an all-American steam engine.

This diminutive locomotive, the second model built in the United States, made a trial trip on November 2, 1830, over the six miles of rails laid in the first year of Horatio Allen's superintendency. The owners were very proud of their purchase. They called it the *Best Friend of Charleston.* Native Carolinians flocked to see the curiosity. So, too, did visitors from distant points, including a bride and groom who figured later in the history of a famous railroad. Very much to Horatio Allen's gratification, the *Best Friend* lived up to its title, settled down to hard work and puffed away valiantly for several months on the job of hauling freight from the interior to ships that visited the city for which it was named. It might have had a long and useful life under reasonably intelligent treatment. Unfortunately there were no railway brotherhoods to object when the Charleston & Hamburg detailed a slave to act as fireman.

This permanent employee may or may not have been temperamental. Some historians insist that his sensitive ears were offended by the weird noises emitted by the locomotive in the throes of blowing off steam. That rumor may have been put into circulation by jealous Yankees. It is more probable that the dusky stoker resented an apparent waste of steam that had cost him much wrestling with heavy pieces of knotty pine. It is even possible that he adhered to the school of thought which afterward gripped those daring Mississippi River steamboat captains who, when a race was staged, often ordered one of the mates to "send a nigger up to sit on the valve." In any event, this particular fireman threw a rope around the safety exhaust, tied it down, and was proud of his own ingenuity when the roar of the steam was silenced.

It proved an expensive victory. A few minutes later the *Best Friend* blew up with a bang that startled every cotton planter in the neighborhood. It was a total loss, insofar as the boiler was concerned. And the crew was not much luckier. Some reports say the engineer escaped with minor injuries. Fellow slaves, however, were requisitioned to pick up the wreckage of what had once been an able-bodied fireman with an anti-safety-valve complex.

That boiler explosion gave birth to a device which soothed the nerves of future travelers on Charleston & Hamburg trains, but was never imitated by Northern railroads. The management issued orders that a flatcar piled high with bales of cotton must forever after separate engine and coaches. If a locomotive simply had to blow up on subsequent trips, the cotton, not the passengers, would absorb the pieces of flying metal. Also, while spurred by inventive impulses, General Manager Horatio Allen devised the first headlight in history. A second flatcar with a thick flooring of white sand was placed in front of the engine. A bonfire of pine knots blazing briskly in the center of this special equipment lighted the rails at night and warned the natives that the crack C & H limited was on its way. This predecessor of kerosene lamps, it might be added, threw a definite percentage of inland plantation slaves into violent convulsions when the first illuminated locomotive ever seen on a railroad was whirled at top speed through South Carolina's hills and swamps.

The inventive genius of the Charleston & Hamburg management could not protect patrons from a series of minor accidents that menaced all early American railroads. These mishaps developed from the use of iron strips as coverings for wooden rails. The increasing weight of locomotives and the inevitable deterioration of the perishable understructure warped the flimsy strips and loosened the nails that were supposed to hold them in position. When a train passed over a broken connection the jagged end of the strip was forced upward by the moving wheels and driven through the floor of the car. Travelers seated in unlucky locations were often seriously injured by these snakeheads, as our first trainmen described the writhing strips. Nevertheless, metal-covered wooden tracks were used on some of our pioneer roads long after the Welsh and English mines turned to the production of solid iron rails.

The first accident in its history did not discourage the Charleston & Hamburg directors. A second locomotive, the *West Point*, promptly took up the white man's burden and the railroad was pushed farther into the West. The main line was completed to Hamburg, a distance of 136 miles, in September, 1833, and the management proudly advertised it as "the longest railroad in the United States." It cost the company more than a million dollars to attain that goal, but the investment was profitable. The new transportation system put Charleston back on the map as an Atlantic Coast port. It was South Carolina's answer to Maryland's Baltimore & Ohio Railroad and New York's Erie Canal.

When the South Carolina Canal & Railroad Company picked Hamburg (formerly Ft. Moore) as the objective of a first survey, the directors had an eye on the heavy cargoes of cotton moving down the Savannah River to the city of that name. They were confident that planters would welcome a swift and dependable rail route to an active cotton market. Their judgment was sound. Shippers gladly turned from the delays and hazards of a temperamental river and consigned their crops to the Carolina coast.

This development alarmed Savannah. The year that saw the completion of the Charleston & Hamburg—1833—brought the birth of a railroad that still operates under its original name. Patriotic citizens of Savannah subscribed the money required for a road from that seaboard city to Augusta, just across the upper Savannah River from the terminus of the Charleston line. They called their project the Central Railroad & Canal Company of Georgia, and authorized it to open "a canal or railroad communication from the city of Savannah to the interior of the state." Two years later the charter was amended to permit construction of a roadbed from Savannah to Macon, and the name was changed to Central Railroad & Banking Company of Georgia. All Georgians, of course, soon reduced this title to Central of Georgia.

The road to Macon was opened in 1843. When it was reorganized on October 17, 1895, it became officially known as the Central of Georgia Railroad Company. While this new line was under construction the citizens of Athens and Augusta organized the Georgia Railroad, which gave the Charleston & Hamburg an extension to the west.

Three years later the entire Cracker State caught the rail-laying fever from its three most enterprising cities. The commonwealth government decided that a road to the big rivers of the Middle West was what Georgia really needed. So they created the Western & Atlantic Railroad and headed it for the Tennessee River.

Railroads usually connect important communities, or two or more bodies of water. The Western & Atlantic was an exception to this rule. It started, arbitrarily, from a ridge in the pine woods, far from any important settlement, and aimed itself rather vaguely toward the Tennessee, Ohio and Mississippi rivers. Some of the Georgia legislators had a restrained suspicion that it might eventually wriggle its way clear out to the Pacific Coast. As a matter of precaution the state authorities decided to encourage the building of a town around the eastern end of the line. They selected Terminus as a suitable name for their city of the future. It was an appropriate title, but it did not please the voters. Therefore, when the tiny community began to acquire a population, it was rechristened Marthasville in honor of their governor's good-looking young daughter. Still later, and under a new administration, of course, the second appellation went to the discard. This time the Georgians gave their embryonic metropolis a name that stuck. They called it Atlanta.

There were many thrilling adventures ahead for Atlanta and its railroad connections with the West. A hundred years ago, however, its first inhabitants were sufficiently happy in the knowledge that they were building up a fine trade in two important Atlantic Coast cities. With the passing of years they saw the Central of Georgia develop into a valuable outlet to Savannah for the Illinois Central. They also saw the Charleston & Hamburg merged into a huge corporation and become the oldest unit of the Southern Railway System.

Charleston moved swiftly in 1829 to protect her transatlantic shipping, but not fast enough to hold her own throughout the years against seaboard cities farther north. New York and Philadelphia watched the transportation experiment in South Carolina with increasing apprehension. These two big ports above the Potomac hesitated while Horatio Allen rushed his rails west to the Savannah River. They wasted valuable time until the shift of cotton from boats to trains warned them that a new era was at hand. There was one rival of Charleston, however, more alert to the menace of competition. When the citizens of Baltimore early in 1827 heard about the big freight shipments down the Mississippi River and other inland waters of the Middle West, they tossed caution aside and cast their votes for immediate action.

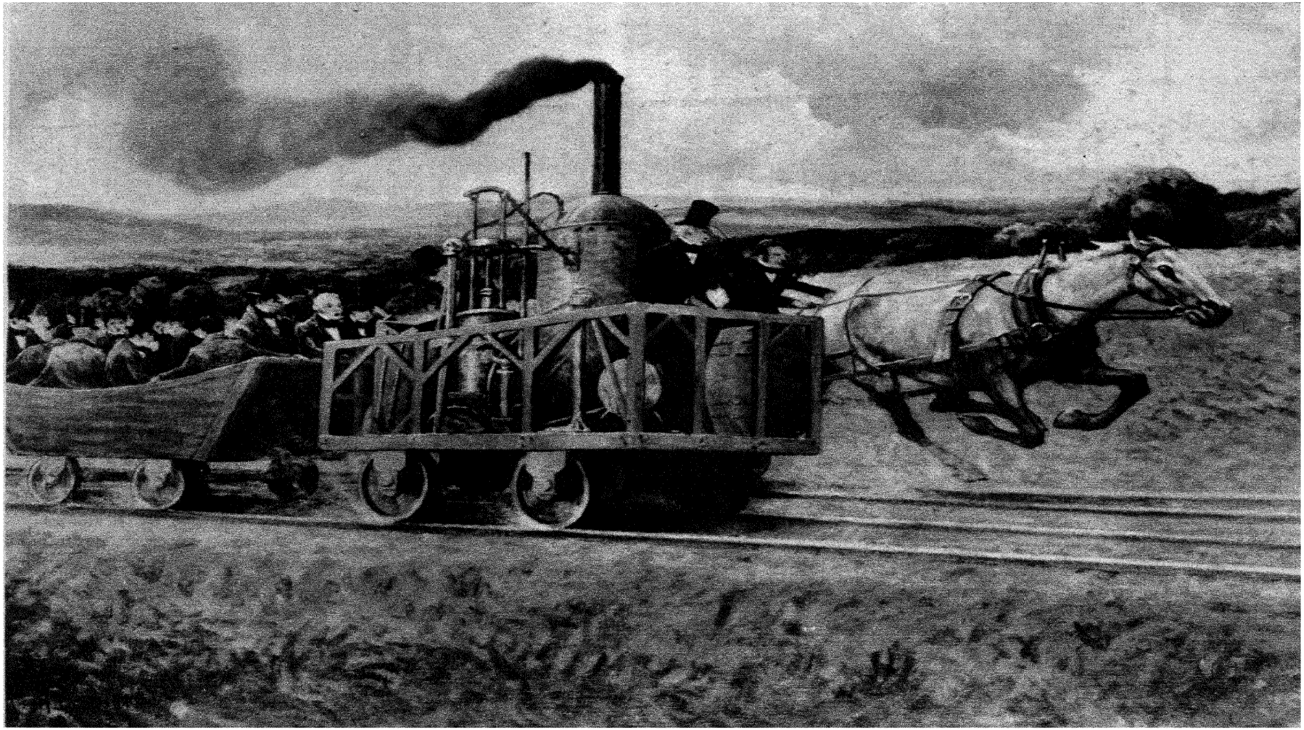
CHAPTER II

A STEAM SHADOW CAST BY COMING EVENTS

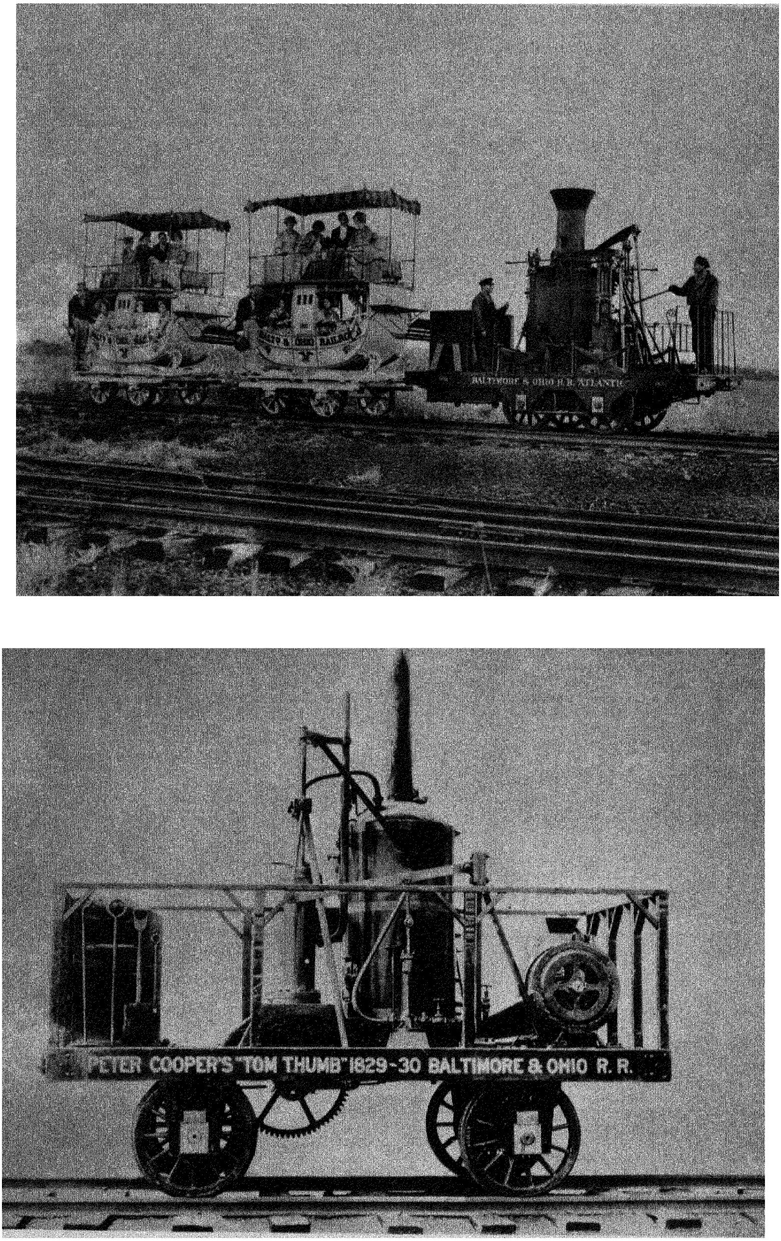
THE LARGE GROUP of spectators that watched the new river craft seemed only mildly interested. There were many distinguished citizens in the gathering, including members of the Constitutional Convention then sitting in Philadelphia. For the date was August 22, 1787. Just thirteen months and two days before, some of that assemblage had stood on this same bank of the Delaware River and jeered John Fitch when he steered against wind and current the first steamboat that ever navigated American waters. They had laughed at the inventor on July 20, 1786, because his miniature machinery balked frequently in its efforts to propel the boat upstream.

This second Fitch product was a decided improvement on the first. Its twelve upright paddles, six on each side of the skiff, worked smoothly and effectively under the propulsion of a system of cranks. It was all very well to call John Fitch a lunatic, but the fact remained that his funny little boat actually did move against the elements. Just why it defied the forces of nature was beyond the understanding of the crowd.

The most interested observer of that successful experiment was the wealthy owner of an estate in New Jersey perched on the heights above Hoboken. He had heard about the Fitch invention and had traveled to Philadel-



The belt slipped and the horse pulled ahead. An artist's conception of the famous race lost by the Tom Thumb, first locomotive on the Baltimore & Ohio.


BALTIMORE & OHIO R.R. ATLANTIC
PETER COOPER'S "TOM THUMB" 1829-30 BALTIMORE & OHIO R.R.

A reproduction (upper) of the double-decked coaches used by the Baltimore & Ohio in 1830 and (lower) the Tom Thumb, first railroad locomotive built in the United States.

phia to see the second test. This spectator kept a telescope trained on the moving craft as long as it was in sight. He stood in silent thought for a few minutes after the skiff faded into the distance. Then, turning to a friend beside him, he said:

"You see what a steam engine can do for a boat. The time is coming, and soon, when it will do greater things on land. This new nation will be developed by the power of steam. It is folly to waste our wealth on canals."

John Stevens, the forty-year-old prophet who thus foretold the future of the United States, was a bit ahead of his time. He lived through a second forty years of the stagecoach era before his theories were accepted. He was in his eighties when Horatio Allen drove the *Stourbridge Lion* over a shaking trestle in the summer of 1829 and when Engineer Darrell, several months later, was blown from the platform of the *Best Friend of Charleston*. Within that span, however, the Hoboken prognosticator earned the right to be called "the father of American railroads."

Stevens was not the type of man to rest his case on a prediction. He realized that he must prove his contention. His experiments with steam engines over a period of thirty-odd years produced results that should have convinced the most hardened unbeliever. He built in 1825 a tiny locomotive with a multitubular boiler and ran it around a circular track constructed on the grounds of his Hoboken estate. The little engine pulled successfully a small car in which six passengers at a time were given experimental rides. He went before the New York

State legislature early in the century and opposed the act in behalf of the Erie Canal. He told the lawmakers about the results he had achieved with tracks and said he could build a railroad for less than the lowest estimated cost of a canal.

The politicians sneered at the suggestion. They classed Stevens as a visionary and voted in favor of the 359-mile waterway between Albany and Buffalo. Workmen had begun digging the Erie Canal three years later when Stevens obtained from the New Jersey legislature the first railroad charter in the history of the United States. It authorized him to build a line from New Brunswick to Trenton.

That charter was granted on February 6, 1815, nearly twenty-eight years after the second Fitch steamboat navigated the Delaware, but the world still lacked faith in rails. As Stevens afterward commented: "The public mind was not sufficiently enlightened to induce moneyed men to embark their funds in a project then considered wild and unpracticable."

Six years later Stevens began his successful fight for a stretch of roadbed that is now part of a modern main line. From 1821 to 1823 he urged the construction of a road to connect Philadelphia with Columbia. This line between the Delaware and Susquehanna rivers was to be the first step, he admitted, toward the building of a transportation system that would extend "to Pittsburgh, and thence into the fertile state of Ohio and the great western lakes." Also, he suggested, it would ultimately "be extended from Philadelphia across New Jersey to the city of New York." Proving, of course, that John Stevens had a fairly clear vision of a railway system that didn't come into existence until a quarter of a century later.

The Pennsylvania Railroad was incorporated by the state legislature on March 21, 1823. The charter was granted to Stevens and authorized the construction of a line from Philadelphia to Columbia, a distance of 82 miles, "on the plan and under the superintendence and direction of the said John Stevens." Stephen Girard and Horace Binney were named as incorporators. This charter, in the opinion of its beneficiary, would not die for lack of popular support. Stevens, accompanied by Charles Loss, made a preliminary survey of the route during the week of July 17, 1823. On the eve of this expedition he wrote an outline of his plans to John Connolly, who had been chosen president of the road, and asked him to call a meeting of the board of directors for 10 A.M., Tuesday, July 29, at 280 Chestnut Street, Philadelphia, to "receive a report of the survey and provide for opening the subscription books."

This was misplaced optimism. Various interests promptly declared war against the project. Owners of truck gardens in the environs of Philadelphia were particularly bitter. A railroad, they contended, would bring fresh fruits and vegetables from distant points and hammer down the market for their local produce. They were right, of course. Competition came with the advent of rails. So, too, did a demand for building lots in the suburbs of Philadelphia. The German gardeners throughout that area had to take a few cents less per basket for their crops. So they sold their farms at fantastically high prices to new citizens of Philadelphia whose need for homes was more acute than their lack of cabbages and potatoes.

Pennsylvania was quite as obstinate as New York on the subject of railroads. Seven months after Stevens made his survey, a special committee of the Keystone State legislature recommended the construction of a canal from Philadelphia to Pittsburgh. This ended all Pennsylvania Railroad plans to open a subscription book. Fortunately, the canal project failed to satisfy the people of Pennsylvania, and cautious lawmakers résumed a discussion of rails. On March 24, 1828, they revived the 1823 plan. A new act ordered immediate construction at both ends of the line that Stevens had surveyed. Twenty miles would be built out of Philadelphia, and another 20 miles at Columbia. Two million dollars was appropriated to cover the cost of these preliminary 40 miles.

This new Pennsylvania was the first railroad in all the world to be built at the expense of the state. Its history should edify anyone who cherishes the theory that government ownership might prove a happy solution of current transportation problems. Work on the project was begun in April, 1829. The first 40 miles were completed before the end of the year. Horse-drawn cars began running over the first few rails on May 1, 1829. The new line was classed as a public highway. The state owned the roadbed and required transportation companies and individuals to provide their own horse cars and pay a toll as high as four cents a ton per mile for use of the track. The service, of course, was appalling. Some drivers with a penchant for snail-like progress created a traffic jam every time they crawled over the line. Meeting points with facilities for passing were provided at so-called strategic points. Usually, when a procrastinating driver saw another car coming against him over the single-track road he would lash his horse to a gallop, regardless of meeting points. Then, of course, the railroad was tied up while the drivers wrangled over the question of which man had the right-of-way. A battle with fists usually ended the argument.

In 1834 the State of Pennsylvania pointed with pride to the fact that continuous traffic between Philadelphia and Pittsburgh was now available to the public. Horse cars made the 82-mile run from Philadelphia to Columbia in about nine hours by changing horses every twelve miles. The eastern division of a state canal, 172 miles long, connected Columbia with Hollidaysburg. The Portage Railroad, a series of inclined planes equipped with stationary engines and cables, took travelers over the mountains. At Johnstown, thirty-six miles west of Hollidaysburg, close connections were made with towboats on the western end of the canal for a three-miles-an-hour dash to Pittsburgh, 104 miles away. The only burst of speed possible in the 394-mile trip was made on the rails of the Philadelphia & Columbia. This stretch also provided the only jolts in the journey. The track was a hodgepodge. Part of it was made by laying iron rails on stone sills or granite blocks. The cars, of course, were not equipped with springs.

The Philadelphia & Columbia was slow to follow the lead of the Charleston & Hamburg and the Baltimore & Ohio. In the middle thirties, however, the State of Pennsylvania reluctantly turned its attention to steam power. The first locomotive, ordered from England, was called the *Black Hawk*, in honor of the famous Indian chief whose deeds were once the talk of the country between the Delaware and the Susquehanna. The new engine was hauled over the turnpike to Lancaster for a trial run from that community to Columbia. Thousands of Pennsylvanians, including Governor Wolf and various state officials, were on hand for the big experiment. The day was beautiful and excitement ran high. Protectors of the public were stationed along the right-of-way to shoo the boys of the neighborhood from the perils of steam locomotion. One of the guardians of safety, a vocally gifted Irishman, patrolled the roadbed, waving a big club as he yelled:

"Get away from the track! When she starts, she'll go like a bird and ye'll all be kilt."

"She" didn't, however. Frenzied tuggings at levers brought no result. The *Black Hawk* refused to roll until volunteers from the crowd put their shoulders to the platform and pushed the obstinate locomotive down the rails.

This first disappointment did not prove a permanent triumph for the horse. Experiments were continued. In 1836 the Philadelphia & Columbia had its quota of steam engines. The State of Pennsylvania owned the track and the locomotives, but political influence kept the right-of-way available for privately owned horse cars. These vehicles continued to crawl tranquilly and languidly up and down the line, thereby setting as a maximum speed limit for the locomotives the slowest pace fancied by any temperamental Jehu.

Eventually, of course, the Commonwealth of Pennsylvania as well as the traveling public grew thoroughly weary of government ownership. On April 13, 1846, permission was granted to a group of private citizens to extend the Philadelphia & Columbia to Pittsburgh and New York, just as John Stevens had originally planned his railroad. That legislative act of 1846 is the charter under which the mighty Pennsylvania Railroad of today still operates. In 1857 the privately owned corporation purchased from the state the original roadbed between Philadelphia and Columbia and made it a part of the Pennsylvania's main line. This vindication of an idea born on the banks of the Delaware in 1787 came nineteen years too late. John Stevens died at the age of eighty-nine on March 6, 1838. It is to be hoped that from some vantage point in another world he saw the birth of his pet project.

A trip from Philadelphia to Pittsburgh in the era of state ownership was a genuine adventure. Today's airplane travelers find it possible to journey halfway around the world in less time than was required a hundred years ago for the rail and canal jaunt between Pennsylvania's eastern and western borders. One invention cut down the cost of freight transportation. An emigrant bound for the West arrived one day at the Hollidaysburg end of the canal. He was prepared to reload his household goods on a Portage Railroad car and abandon his boat. An enterprising official blocked this activity to test an idea. He constructed a makeshift cradle, fastened it on two flatcars and backed this equipment under the emigrant's heavily laden craft. The scheme worked. At the end of the 36-mile trip over the mountains, via the inclined planes, the boat from the East was eased into the western half of the canal and continued in triumph its placid voyage to the goal of the pioneer.

This incident inaugurated a new type of canal boat. It was built in short sections, each fitting a specially designed, wheeled truck. Freight billed for the West was packed in these sections, hauled by mules through the streets of Philadelphia to the western edge of the city and across the old Columbia Bridge that spanned the Schuylkill River. The mules were detached at the foot of what is now Belmont Plateau in Fairmont Park and the canal-boat sections were hauled up the inclined plane to the roadbed of the Philadelphia & Columbia Railroad. At the end of this line the sections were joined together, slipped into the canal and pulled by towpath mules to Hollidaysburg. There, of course, the boats were again reduced to sections, hauled up the Portage Railroad to the top of the mountains and eased down to Johnstown. At this point they went back into water and completed their trip to Pittsburgh by canal.

The new method of handling freight brought a substantial reduction in traffic costs because it eliminated from three to five reloadings en route. Nevertheless, the decrease was not sufficient to satisfy producers in the Pittsburgh area. Some of these shippers, irritated by the complicated procedure on the rail and canal system, threw their business to an all-water route. They sent their freight by barges or steamers down the Ohio and the Mississippi, thence through the Gulf of Mexico around the tip of Florida, up the Atlantic to the Jersey coast and into Philadelphia via the Delaware River. It was a slow and tedious method of reaching the Philadelphia market, but it was far less expensive than the overland trip from Pittsburgh.

This fact did not escape the attention of the alert Baltimore & Ohio management, which was now operating trains between Baltimore and Cumberland. The Maryland railroad applied to the Pennsylvania legislature for permission to extend its new line from Cumberland to Pittsburgh. Alarmed by this step, the business interests of Philadelphia demanded a road through the mountains. This was the beginning of an unceasing rivalry between two famous railroads. Powerful pressure was put on the Pennsylvania legislature by the clashing interests. The Keystone statesmen, after prolonged debate, decided on a compromise. They granted charters to both roads in 1846. There was a joker, however, in the B & O authorization. It provided that work on the Pittsburgh extension could not begin prior to July 31, 1847. The act further provided that even this qualified permission would become null and void if within the prescribed time limit the newly organized Pennsylvania Railroad should sell stock for a total of $3,000,000, collect 10 percent of that sum in the form of a first payment and complete construction of at least thirty miles of a new line between Philadelphia and Pittsburgh.

The hint was sufficient. Public meetings of Philadelphia citizens were called immediately and a house-to-house stock-selling campaign was inaugurated. After nearly a quarter of a century of procrastination the Quaker City became a hustling community of railroad-conscious patriots. On February 25, 1847, the Governor of the state certified that a first down payment had been made on 60,000 shares of $50 par value stock in the Pennsylvania Railroad. This stock proved an excellent investment. It has paid dividends in each of the ninety-odd years since it was issued—a record unique in the financial history of American railroads. These dividends have totaled considerably more than a billion dollars. In the pre-depression year, 1929, more than 200,000 stockholders received nearly $47,000,000 in dividends. The original 60,000 shares put out in 1847 had increased in 1929 to 14,000,000 shares. In that year, also, the Pennsylvania Railroad paid nearly $45,000,000 in taxes and dispersed wages for the twelve months' period of approximately $350,000,000. The little Philadelphia & Columbia line, notwithstanding its feeble beginning, developed during its first half-century of progress into the world's biggest and most powerful railway system.

The building of this rail empire, an extraordinarily interesting process, was due to the brains and the foresight of the officials to whom the destiny of the road was entrusted in its adolescent years. From 1847 to the end of the century the Pennsylvania Railroad was uncannily right in its scheme of expansion and subsequent consolidations. One of the first connecting lines it absorbed was the Camden & Amboy. Robert L. Stevens, who obtained the charter for this road from the New Jersey legislature on November 12, 1831, was a son of the famous John Stevens and inherited his father's faith in the future of steam. When construction began along the line of the Camden & Amboy survey he sailed for England to purchase a locomotive. A trip across the Atlantic more than a hundred years ago gave passengers ample time for thought. Stevens utilized a few of his leisure hours to whittle out of wood a model for a new type of iron rail capable of supporting the heaviest conceivable traffic. This was the original design for the so-called T-shape, which did not differ materially from the standard rails of today. Stevens had them rolled in Wales. Also, it might be noted, he devised for them the famous hook-head railroad spike.

The first locomotive ordered by Robert L. Stevens was the *John Bull.* It made its initial run over an American roadbed on November 12, 1831, and proved a striking contrast to practically all other engines imported from England. This first *John Bull* was exhibited at the Philadelphia Centennial Exposition of 1876 and at the Chicago Exposition of Railway Appliance held in 1883. Then it went to the National Museum in Washington. Ten years later, on April 17, 1893, the venerable old locomotive was dragged from its honorable retirement and hitched to the *John Bull* special. Under its own steam, and without any other help whatever, the gallant old relic of a forgotten era hauled the exhibition train 912 miles to Chicago. The trip was interrupted by ovations all along the line, but the quaint little engine and coaches arrived safely in Chicago on April 22, 1893. It was an outstanding attraction at the big Chicago World's Fair, and hauled more than fifty thousand passengers over exhibition tracks at the terminal station yard. It left Chicago under its own steam on December 5, 1893, arrived in Washington on December 13 and went back to its place of honor in America's National Museum.

The old *John Bull* began making history from the day of its arrival in the United States. One of the first Americans who studied its mechanics was Matthias W. Baldwin, a Philadelphia jeweler, who had received an order to construct a miniature locomotive for the Philadelphia Museum. The model he built followed the design of the new engine from England. It was tried out on a tiny circular railroad in the museum on April 25, 1831, and was a complete success. It hauled a train of little coaches with four passengers in each car. As a result of this well-advertised stunt the enterprising jeweler received a commission from the new Philadelphia, Germantown & Norristown Railroad for a full-size locomotive. He turned out an improvement as well as an enlargement of the museum model and called it *Old Ironsides*. It met the requisite tests, but Baldwin was dissatisfied. He said to a sympathetic friend: "This is our last locomotive."

It wasn't. Orders continued to pile up. Two years later, in response to insistent demands from an industry that had outgrown horse cars, the jeweler turned out two locomotives. One, the *Baldwin*, went to the Charleston & Hamburg Railroad. The other, called the *Lancaster*, was assigned to the Philadelphia & Columbia. Both engines made good, and orders increased. After a few more active months the builder of *Old Ironsides* had no time to waste on watches and rings. Thus was born a famous American manufacturing corporation, the Baldwin Locomotive Works.

Pioneer railroad officials who ordered locomotives from the Philadelphia jeweler either placed a high valuation on Baldwin's output or suspected that his steam engines, like his gold watches, would be damaged by moisture. In 1834, for example, newspaper advertisements displayed by the Philadelphia & Columbia Railroad announced that: "The locomotive, by M. W. Baldwin, of this city, will depart daily when the weather is fair, with a train of passenger's cars. On rainy days, horses will be attached."

The Camden & Amboy was a more daring carrier. It ran its locomotive in all kinds of weather and at constantly increasing speeds. Possibly that fact was responsible for an unenviable distinction earned by the road just two years after the *John Bull* went into service. On November 9, 1833, newspapers throughout the East announced the first passenger train wreck in American history. It occurred on the Camden & Amboy main line between Spotswood and Hightstown. One carriage was turned over and twelve of its twenty-four occupants were seriously injured. One of the victims was "Captain Vanderbilt, formerly of the New Brunswick Steamboat."

This mishap obviously did not discourage the future owner of the New York Central Railroad.

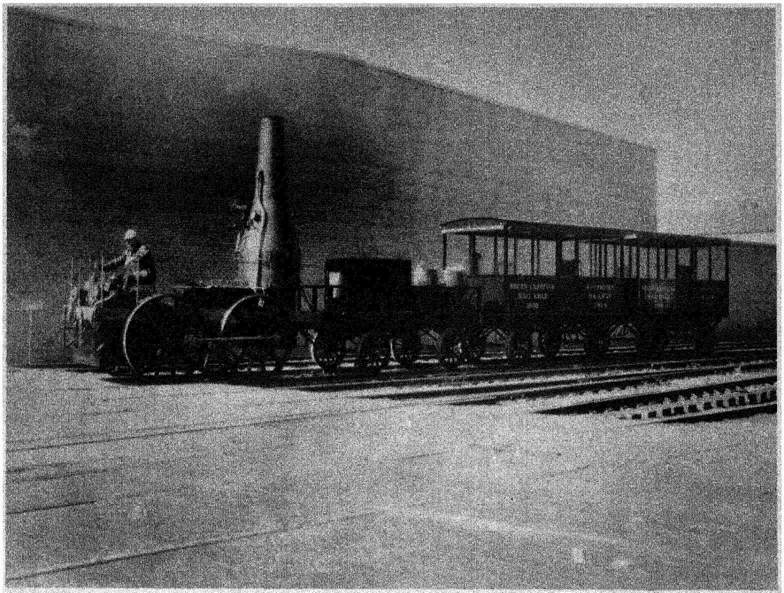
The Camden & Amboy was the first steam railway built between Philadelphia and New York. The northeastern terminus touched South Amboy, from which point passengers continued the journey to New York by boat. This short voyage through Staten Island Sound proved decidedly popular with the traveling public, but a demand for greater speed soon killed the scenic route. The railroad from Philadelphia was continued to Trenton, Elizabeth, New Brunswick, Newark and Jersey City, where connections were made with ferries across the Hudson to New York. This, of course, is now a part of the Pennsylvania main line.

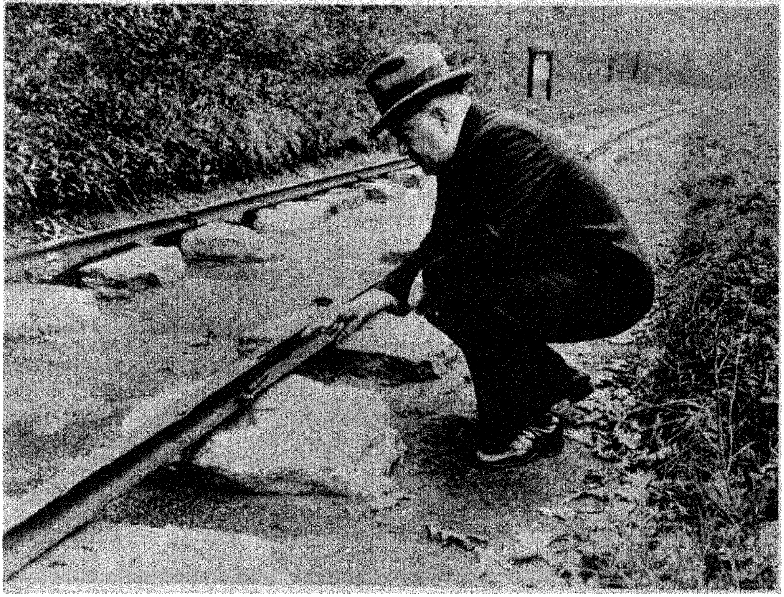
When Major John Wilson, of the United States Army, made a final survey for the Philadelphia & Columbia Railroad in 1827, his ablest assistant was John Edgar Thomson. One year later this young engineer became a member of the corps of experts who laid out a route for the Camden & Amboy. In 1830 Thomson became assistant engineer of the new road's eastern division. When construction was completed he went abroad to study the technique of public works. In 1832 he was chosen as chief engineer of the Georgia Railroad. He built the line from Augusta to Atlanta and the branch to Athens, a total of 213 miles of track. With this background he had no difficulty in obtaining an appointment as chief engineer of the new Pennsylvania Railroad.

Thomson's construction of the line from Philadelphia to Pittsburgh, particularly the route through the mountains, required all the knowledge and ability he had acquired and developed on three earlier jobs. He soon demonstrated that he was an executive as well as an engineer. On February 2, 1852, about five years after his first connection with the Pennsylvania, he was made president of the road. Ten months later, on the tenth day of December, through trains were running from Philadelphia to Pittsburgh. In the next twenty-two years, until his death on May 27, 1874, he concentrated on the task of creating the finest transportation system in the world and succeeded beyond all expectations. He was a reticent, taciturn, cautious, yet decidedly farsighted executive, ideally equipped for the formative years of the road destined to outstrip every rival. Thomson seemed to foresee the traffic problems of today and built or bought to meet them.

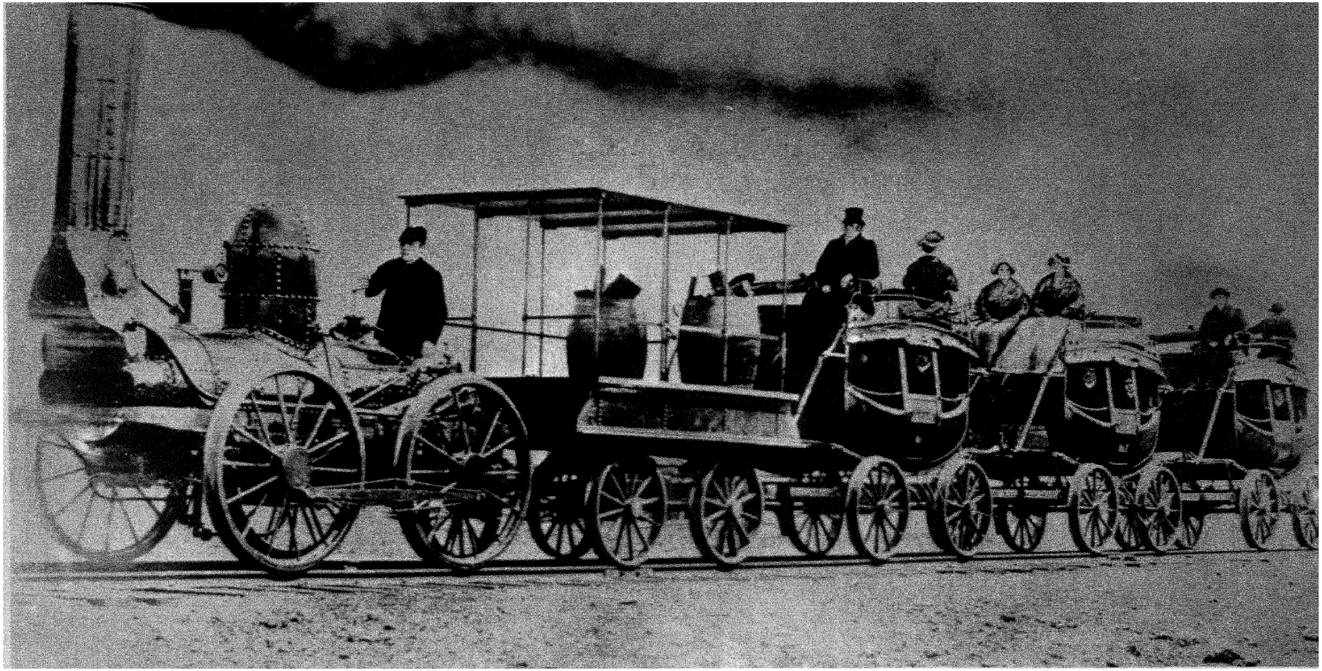
He had his eye on the Camden & Amboy from the beginning. He advocated in 1847 the purchase of the Philadelphia & Erie and took the road over in 1861. In 1866 he bought the partially built Baltimore & Potomac which, in 1873, gave him a line to Washington. On June 7, 1869, he leased for 999 years the Pittsburgh, Ft. Wayne & Chicago, thus extending his system to the new metropolis of the Middle West. This step followed his purchase at auction of the Pittsburgh & Steubensville Railroad, originally known as the Panhandle because it ran through the strip of West Virginia wedged between the Ohio River and the Pennsylvania state line. On December 1, 1871, Thomson acquired the railways and canals of the Joint Companies of New Jersey. This system included the Philadelphia & Trenton, which became two years later part of a main line from Jersey City to Washington through a tunnel in Baltimore that was the talk of the engineering world in 1873.

At the end of his long regime President John Edgar Thomson could look with satisfaction on an empire bounded by New York, Philadelphia, Baltimore and Washington on the Atlantic seaboard and Cincinnati, St. Louis and Chicago in the West. Every division of this far-flung domain was a compact, self-supporting unit of a carefully planned network of rails. The men who now operate the Pennsylvania speak reverently of its first great president. They see the results of a strategy that looked far into the future.





(Above) A reproduction of "The Best Friend of Charleston" which, on January 15, 1831, inaugurated the first regularly scheduled steam railway passenger service in the United States. (Below) Older than cross-ties. A stretch of track laid more than a century ago when pioneer builders fastened their iron rails to blocks of stone.



A reproduction of the DeWitt Clinton pulling the first passenger train on the Mohawk & Hudson. This ancestor of the New York Central's Twentieth Century Limited went into service on August 9, 1831.

CHAPTER III

Rails Rise Over the Mountains

When President Philip E. Thomas of the Mechanics Bank of Baltimore reached his desk on Monday morning, February 12, 1827, he found an unusually big pile of correspondence awaiting his attention. A ship from England had arrived over the week end with a heavy accumulation of mail. One of the first letters he opened was from his brother in London. He read it with increasing interest, reread it carefully, and sent a runner to ask George Brown, one of his directors, if he would be good enough to step across to the bank.

"George," he said, "here is a letter from brother Evan that tells of a plan to build a road from Liverpool to Manchester. It will have iron rails on which carriages can be drawn quickly and cheaply. It may be that this is what we need to bring to us our share of the trade across the mountains that is going to New York on the Erie Canal."

"I have heard about the new road," his associate replied, "and I have been thinking the same thing."

"Suppose we have a meeting at your house tonight, George, and talk it over with some of our friends."

That meeting brought together more than twenty of Baltimore's wealthiest and most influential citizens, including Charles Carroll of Carrollton, whose name had been signed with a flourish half a century before to

America's famous Declaration of Independence. At the end of the session a committee of nine was appointed to investigate the subject and prepare a report for consideration at a second meeting scheduled for the following Monday.

The report read the next week was a stirring approval of the railroad proposal. It pointed out that the Baltimore area had almost twice the population claimed by New York and her neighbors, yet traffic on the newly opened Erie Canal had jumped from $341,000 to $765,000 in a little more than a year. There were innumerable commodities produced on either side of the Alleghanies along the proposed route to the Ohio River, said the committee's report, which were now almost valueless but which would be sources of great wealth if adequate transportation facilities were available. Within thirty years the fast-growing settlements in the Middle West would surely extend to the Rocky Mountains and might even reach the Pacific Coast.

This glowing pen picture carried the meeting by storm. A twenty-seven-year-old lawyer, J. V. L. McMahon, was authorized to draw up a charter at once. He did so good a job that his plea was granted by the Maryland legislature on February 28, just sixteen days after the preliminary meeting was held to discuss transportation over the mountains. Less than two months later the Baltimore & Ohio Railroad Company was organized with Philip E. Thomas as president, George Brown as treasurer and Charles Carroll of Carrollton as the outstanding member of the board of directors. The capital was fixed at $3,000,000, one-third of which would be shared equally by the City of Baltimore and the State of Maryland. The balance was allotted to the public. When the books were closed after a twelve days' selling campaign the stock was more than three times oversubscribed. Twenty-two thousand Baltimoreans clamored for participation in the venture, and the smaller cities of Maryland showed equal enthusiasm. On July 4, 1828, the venerable Charles Carroll, in his ninetieth year, turned the first dirt for the new B & O and observed to his listeners:

"I consider this among the most important acts of my life; second only to the signing of the Declaration of Independence, if even it be second to that!"

The story of the building of the B & O balances courage against cupidity, and brains against blunders. When the belated discovery was made that a $3,000,000 capital was totally inadequate for the construction of a line to the Ohio River the backers of the project turned to the federal government for help. They were blocked by a lobby in the pay of a canal company, even after the United States Senate had voted to come to their assistance. When a side line to Washington was planned, a turnpike company fought the charter to a standstill through three sessions of the Maryland legislature. The struggling young railroad was held up in the narrow valley of the Potomac until it agreed to appropriate from its depleted treasury the cost of acquiring 2,500 shares of Chesapeake & Ohio Canal Company stock. As against this, must be set down the fact that the B & O received aid in the blackest hours of its history from totally unexpected sources. The inventions of amateurs solved problems that baffled professionals, and British bankers stepped in when even the State of Maryland's bonds could find no buyers. A newspaper editor in Baltimore and a philanthropist from New York were responsible for the equipment that justified the forward thrust of the rails to the foothills of the Alleghanies, and Baring Brothers of London financed their extension through mountains that barred them from the banks of the Ohio.

The first stretch of the new road was completed just three years and one month after the birth of the company. It was a big day in Maryland when the *Baltimore Gazette* announced that, beginning Monday, May 24, 1830, a "brigade of cars" would run three times a day, every day except Sundays, from Baltimore to Ellicott's Mills, a distance of almost 13 miles. It is true that the "brigade" was pulled by one lone horse, but Charles Carroll, accompanied by the Mayor of Baltimore, officials of the road, distinguished citizens and representatives of the press, rode proudly in the company's crack new car, *Pioneer*, on its maiden run. The next day, newspaper readers learned with amazement that the first train on the B & O had at one point developed a burst of speed in excess of 15 miles an hour.

The roadbed of the new line was more substantial than comfortable. Most of the track was made of yellow pine rails laid on slabs of granite. Thin strips of iron held down by 4″ wrought-iron nails gave the *Pioneer's* wheels, with flanges on the outside, a better grip than might have been provided by unadorned wooden stringers. Those first trips, of course, afforded passengers a decidedly bumpy ride, but the proletariat of the day took the jolts without comment. The citizens of Baltimore were more interested in the fact that one 13-mile trip had been made in 54 minutes, with thirty tons of flour added to the trainload.

The officials of the road did not share this satisfaction. They knew that horse-drawn trains would never connect Baltimore with the West. They tried sails for motive power. This expedient worked beautifully when the wind came from the right quarter, but breezes proved temperamental. They tried a treadmill operated by horsepower, but this invention was wrecked by an obstinate cow that stood between the rails, apparently sneering at the activities of the patient horse. Locomotives were being used in England, but the curves on the B & O were too sharp for British-built engines. And then along came a rank outsider with a really practical suggestion.

This friend in need was Peter Cooper, of New York, who had been induced to buy 3,000 acres of land just outside Baltimore because it adjoined the new B & O line. Cooper's speculation made him keenly sympathetic. He listened to the railroad officials' lament that the curves on their right-of-way would automatically bar motive power that had proved successful in England. The man from New York advanced the theory that an engine could be built to fit these curves. He owned a foundry up North, and he believed he could knock together a suitable locomotive.

He did. His first product was so small that he called it the *Tom Thumb*, but it was superior on some counts to the locomotive George Stephenson was producing that year in England. Cooper perfected two fundamentals of any practical locomotive. One was the forced draft and the other was the multitubular boiler. He used a few old musket barrels for this second essential, but they worked. Not as effectively, it is true, as the mile and a half of tubing woven into the locomotive of today, but the principle was the same. Cooper deliberately planned his forced draft, and got results with a bellows worked by a belt connected with an axle of his engine. Stephenson hit by sheer chance on the same effect when he turned the steam from his exhaust into the smokestack to muffle a noise that frightened horses in the neighborhood of English railroads.

On Saturday, August 28, 1830, Cooper coupled the *Tom Thumb* to a car with thirty-six passengers aboard and made the 13-mile run to Ellicott's Mills up a grade of 18 feet to the mile in 1 hour and 12 minutes. Coming back, he developed a speed of eighteen miles an hour and made the run in 57 minutes. His *Tom Thumb* ate up curves and grades and developed with a single cylinder decidedly more power than the two-cylinder British locomotives. This remarkable achievement was overclouded by one mishap. On the second half of the trial trip a coach pulled by the fastest horse owned by a competing stage-line company challenged the little locomotive to a race. Cooper accepted, cut down the flying start made by the horse and was far out in front when the belt that operated the *Tom Thumb*'s blower slipped out of position.

The elimination of the forced draft reduced his steam and slowed his engine to a walk. Before the inventor could overcome the accident the horse-drawn coach had won the race.

Nevertheless, the *Tom Thumb's* trial trip ended all question about future motive power for the B & O. New buyers were found for the company's stock. The road was saved from impending failure. So, too, was the value of Cooper's big tract of land.

The second rail novice who came to the aid of the B & O in the period of experimentation was Ross Winans, publisher of the *Baltimore Gazette* and a member of the little road's board of directors. He built car models that fascinated railroad-conscious Baltimoreans and printed much material about the problems and possibilities of railroad equipment. The first genuinely valuable innovation invented by Winans was a radical departure from the awkward little coaches perched on four wheels which the pioneer rail-equipment manufacturers merely copied from standard stagecoach designs in vogue at that period. Winans produced a long car with a sixty-passenger capacity which he mounted on four-wheel trucks. This new type of coach, specially designed for sharp curves, was the original model for modern railway cars. The inventor called it the *Columbus,* which was a decidedly appropriate name. In one detail, it copied the primitive iron-wheeled coaches first run on American rails. It had seats on top, reached by a ladder placed in one corner.

The *Columbus* was followed by a series of fantastically named cars, including the *Dromedary* and the *Sea Serpent,* but each of these models showed improvements that were passed along to its successor. One of these effective features was the long aisle down the center of the car, instead of a narrow ledge outside for conductors to which the British equipment manufacturers obstinately clung. When Winans turned out the *Washington* he gave the B & O a passenger coach that set a standard for fifty years. It was he who invented an antifriction journal and a conical wheel with the flange inside. He also mounted his cars on springs, thus making life less miserable for travelers on the new road to the West.

The busy Mr. Winans did not stand pat on his car construction. He soon turned his inventive genius to locomotives. He studied the *York,* built by Phineas Davis, which followed the *Tom Thumb* on B & O rails. This engine, mounted on springs, gave him the idea that eliminated the worst jolts from American passenger trains. As the new line crept toward the mountains, Winans met all problems created by a climbing right-of-way with locomotives that triumphed over every obstacle. His most efficient product, called the *Camel* because its cab perched on top the boiler like the hump on the patient desert drudge for which it was named, pulled heavy B & O trains over the tops of mountains while tunnels for a reasonable grade were being bored far below. More than a hundred *Camels* were placed in service on the B & O over a period of years. They were ugly, but their eight driving wheels utilized every pound of their great weight to increase the tractive force.

The Baltimore newspaperman who beat trained mechanical engineers at their own game certainly rates a monument on the highest peak of the Alleghanies.

The ultimately far-flung lines of the B & O were feebly begun. From July 4, 1828, until the advent of winter stopped construction in the final months of 1829, only 25 miles of the new right-of-way were graded. Thirteen miles of completed track went into horse-car service the following spring. Three months later the *Tom Thumb* made its first run to Ellicott's Mills. On April 1, 1832, seventy-two miles of rails were in service between Baltimore and Point of Rocks on the upper Potomac. A few months later the new road set a precedent by running over and killing the first drunken man in American history who hit on the idea of sleeping between the rails.

On December 1, 1834, the main line reached Harpers Ferry and established a connection with the newly built, 30-mile-long Winchester & Potomac Railroad. This through service from Chesapeake Bay to the valley of Virginia created profitable business and encouraged the B & O to extend its tracks. Meanwhile work had progressed on a subsidiary road, the Washington & Baltimore, built at the insistence of President Thomas. This branch line was opened for traffic on August 25, 1835. Seventeen cars drawn by four locomotives transported nearly a thousand guests to Washington, where an appropriate celebration was staged. As a demonstration of the fact that an era of speed was at hand, the run back to Baltimore was made in 2 hours and 20 minutes.

Three years later the Baltimore & Ohio, after working out an arrangement with the Philadelphia, Wilmington & Baltimore for the transportation of mail between Philadelphia and Washington, gave Congress something to talk about. When President Martin Van Buren sent his annual message on the state of the Union to the House and Senate in December, 1838, the two railroads arranged a demonstration of speed. Copies of the presidential message were handed at high noon to Conductor Wilde, in charge of an abbreviated special. When this railroad employee raced to the Washington station, a carefully chosen locomotive, the *William Cooke,* was waiting, trembling on the rails and with steam roaring from the safety valve. One hour and thirteen minutes later Conductor Wilde swung off on the Baltimore platform and handed copies of the message to representatives of the Philadelphia, Wilmington & Baltimore and the Baltimore & Susquehanna railroads.

Mr. Van Buren's observations reached Philadelphia at 6.07 P.M., and 3 hours and 8 minutes later several copies were delivered in New York, where the steamer *John W. Richmond,* chartered by the *Boston Globe,* was waiting to rush them to New England. The enterprising railroads had made the run of 225 miles between Washington and New York in 9 hours and 57 minutes. With the cooperation of a pony express between York and Harrisburg, the Baltimore & Susquehanna delivered the White House message to the capital of Pennsylvania only 3 hours and 41 minutes after the *William Cooke* had roared away from the home of the federal government.

When the nervy promoters of the B & O decided in

1837 to push their main line to Cumberland, the State of Maryland and the City of Baltimore came to their assistance with subscriptions of $3,000,000 each. Unfortunately, no market could be found for the municipal securities issued for the subscription. Even laborers on the right-of-way were paid with fractional certificates exchangeable for stock subscribed by the City of Baltimore. Louis McLane, who had succeeded President Thomas in 1837, tried to float bonds in Europe in 1844 for completion of the road to the Ohio River, but found no buyers. Nevertheless, construction gangs reached Harpers Ferry, 81 miles from Baltimore, in 1846, sixteen years after the first train was run to Ellicott's Mills.

And then, in 1848, Thomas Swann, a dynamic financier, was elected president of the Baltimore & Ohio. He persuaded Baring Brothers of London to take a million of the old Maryland State bonds that had been slumbering in the treasury and work was resumed at top speed on the last 200-mile stretch through the mountains to Wheeling, West Virginia, on the banks of the Ohio.

The building of this roadbed was a titanic feat. The difficulties conquered by the B & O engineering department were unprecedented in the industrial history of America. Eleven tunnels, totaling 11,156 feet, were blasted and dug between Cumberland and Wheeling. One hundred and thirteen bridges, with a total length of 7,003 feet, were thrown across rivers and valleys and streams. One of them, a 650-foot viaduct across the Monongahela, became the longest iron bridge in the United States. In spite of everything, the B & O forged ahead. The chief engineer of the road, B. H. Latrobe, promised the citizens of Wheeling that he would give them a railroad "by the first day of 1853." He laid the last rail on Christmas Eve, 1852, and on New Year's Day the first train rolled into a temporary railway station in Wheeling.

This achievement, a justification of the Baltimore & Ohio's name, was celebrated in a manner worthy of the event. On Monday, January 10, 1853, two special trains left Baltimore for the western terminus. The governors of Maryland and Virginia, accompanied by the legislatures of the two states and every really important citizen of Baltimore, were aboard those trains. Makeshift banquet cars, the first railway diners in history, were invented for the specials. Baltimore's most famous caterer laid boards on wooden supports along the length of the cars and served a meal worthy the occasion. The trip over the mountains terrified some of the guests. The great tunnel through the Pettibone was not ready for rails, so Ross Winans' *Camels* pulled the specials up and over the summit of the peak. This was too much for the nerves of at least a part of the passengers. They climbed out of the train and navigated on foot the most hazardous stretches of the run through the mountain division. As a consequence, it was after midnight on Tuesday when the nervous travelers arrived in Wheeling. The banquet, with its inevitable oratory, was postponed until next day.

The drive of the rails to the Ohio River was justified. In 1843, the year following completion of the road to Cumberland, the B & O carried 4,964 tons of coal to the

East. Seven years later this profitable freight item jumped to 132,534 tons. The steady increase of traffic encouraged the road's management to enlarge its facilities. In 1851 a feeder called the Northwestern Virginia Railroad was authorized to build from Grafton, on the main line, to Parkersburg, a more desirable Ohio River terminal than Wheeling. Six years later, when this extension was opened for traffic, the new Marietta & Cincinnati Railroad arrived at a point opposite Parkersburg, and the equally new Ohio & Mississippi completed construction of a through line from Cincinnati to St. Louis. Thus, Atlantic Coast travelers could journey from New York to St. Louis with only five changes of cars en route, not to mention two ferry crossings and two very short steamboat trips.

This new milestone in railroad history called for an unprecedented celebration. The Ohio & Mississippi opened the festivities on April 8, 1857, with a blanket invitation to President Buchanan, the members of his cabinet, the Washington diplomatic corps and more than seven hundred other celebrities, including George Bancroft, the historian; Stephen A. Douglas, the "little giant"; Henry Ward Beecher, the famous preacher; and Washington Irving, the most distinguished American writer of the day. The Baltimore & Ohio broke out a special train for the event. It left Baltimore at six o'clock, Monday morning, June 1, 1857, and made the 279-mile run to Grafton in 15 hours. The second night was spent in Chillicothe, Ohio. Cincinnati declared a holiday in honor of the visitors. Special trains on the Ohio & Mississippi took more than 1,500 guests on a run to St. Louis that was accompanied by the booming of cannon and the blaring of brass bands. Four brilliantly lighted steamboats, moored to the St. Louis wharves, provided living quarters for the guests from Washington, Baltimore and other Eastern points. A day of parades, speeches and banquets and a night of fireworks and serenades told the world that sleepy old St. Louis, metropolis of the middle Mississippi, was proud of those lines of iron that connected her with the wide waters of the mighty Atlantic.

Celebrations of the Baltimore and St. Louis wedding were not confined to the Middle West. Maryland enthusiasts insisted on playing a hand. Consequently, on Wednesday, July 15, a majority of the survivors of the Missouri program turned their faces toward Chesapeake Bay. They arrived in Baltimore on Saturday, July 18, and were led in triumph to the Maryland Institute, where a thousand hardy souls sat down to a banquet that completely eclipsed all records set earlier in the week out on the banks of the Mississippi.

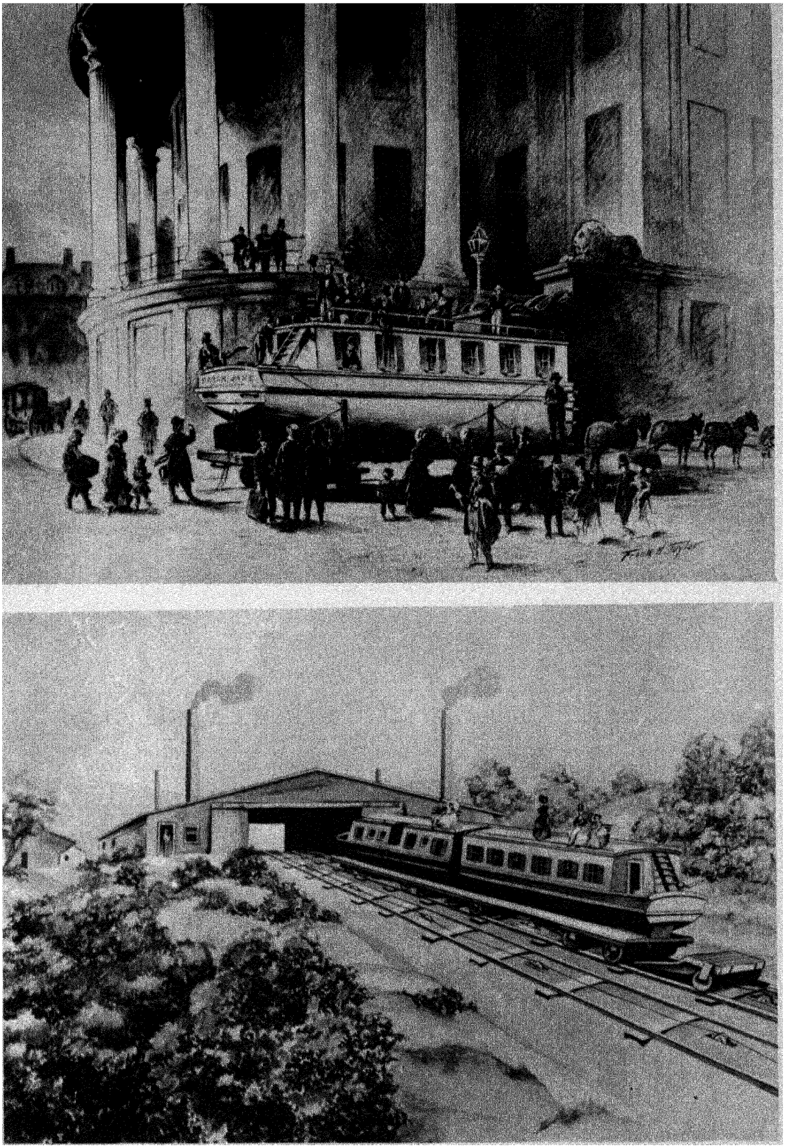
The Baltimore hosts led off a bit modestly with green turtle soup and *consommé Julienne*. Then, remembering that many of their guests were not familiar with seashore possibilities, they followed through with striped bass, baked with *Génoise* sauce; boiled salmon, with lobster sauce; boiled sheepshead, with white sauce; and Chesapeake Bay mackerel. As garnishings for this casual fish course, they provided cucumbers, assorted pickles, anchovies, olives, applesauce, currant jelly, French mustard and Worcestershire sauce. The succeeding course was a mere gesture. It featured boiled lamb, ham and chicken.

Confident that these trifles had really whetted appetites, the Baltimoreans came through next with some solid food. The entrées included young chickens, Maryland style; larded sweetbreads, with white sauce; *galantine de poulets*, without trimmings; *petits pâtés, à la reine*; *filets de boeuf*, with Madeira wine sauce; filets of veal, *Périgord*; lamb chops, with *soubise* sauce; *vol au vent, à la financière*; mountain oysters, sauce *royale*; and *timbale de macaroni, Milanaise*. As a balance for the meats, the management served corn on the cob, string beans, boiled potatoes, baked cymlings, green peas, boiled beets and both stewed and baked tomatoes.

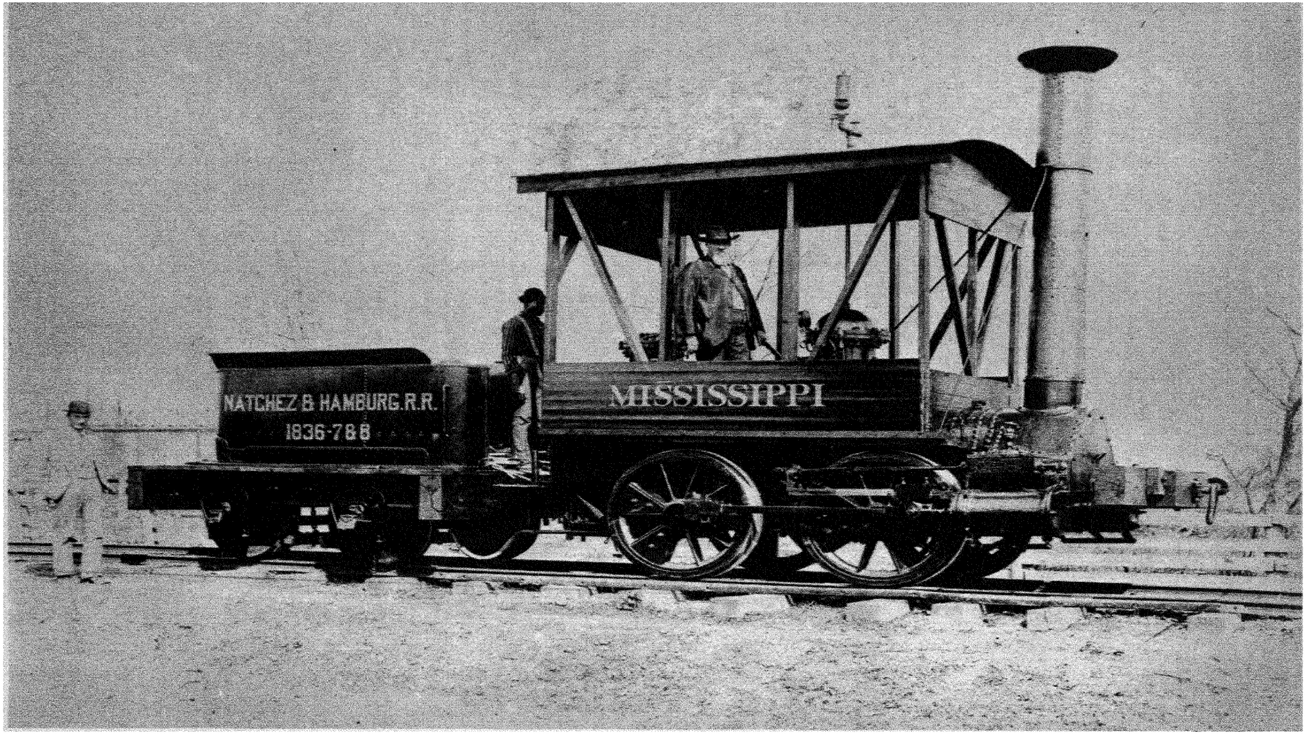
At this stage of the activities, remembering that their feet were on their native heath, the entertainers permitted their Free-State darky cooks to cut loose without the handicap of bill-of-fare French. The next course merely headlined fried soft crabs, with butter and parsley sauce; green goose, with applesauce; soft crabs, broiled with almonds; summer duck, with olives; hard crabs, deviled; roast saddle of mutton, with currant jelly; and roast ham, with champagne sauce. These tidbits were followed by buffalo tongues, garnished with jelly; crab salad, Baltimore style; boned turkey, French style; ham on a pedestal, decorated with jelly; lobster salad, with mayonnaise; and various other trifles.

The hospitable hosts stood pat on fifteen desserts. The sweets were limited to charlotte russe, orange ice cream, charlotte russe with lemon, vanilla ice cream, *bisquit glacé à la crème cassis*, almond ice cream, punch cakes, raspberry ice cream, nougat basket, strawberry ice cream, fancy cakes, pineapple ice cream, *bisquit glacé au chocolat*, Madeira wine and Maraschino. As a precaution, the climactic course was followed immediately by oranges, pears, apples, bananas, apricots, raspberries, pineapples and—iced watermelon!

According to the newspapers of that period, the guests not only waded triumphantly through this menu but, while doing so, listened to seventeen elaborate speeches. Following which, they were hurried to Washington to hear a really imposing talk by President Buchanan. After that, they relaxed for a quiet excursion to Norfolk, where hospitable Virginians were waiting patiently for them with unlimited quantities of fresh food and even more eloquent orations.



(Above) Half a boat onward. Passengers leaving Philadelphia for the West a hundred years ago in a two-piece craft that traveled on rails between canals and was bolted to the other section for the trips by water. (Below) The "Portage Railroad" which, more than a hundred years ago, connected two canals and the first unit of the Pennsylvania System, thus providing a continuous line of traffic between Philadelphia and Pittsburgh.


NATCHEZ & HAMBURG R.R.
1836-788
MISSISSIPPI

Yes, she's from Dixie. The "Mississippi," oldest existing locomotive in the South, was built about 1834 for the Natchez & Hamburg Railroad.

CHAPTER IV

Whistles Follow the War Whoop

John T. Clark, the most important man in Albany on August 9, 1831, was acutely conscious of the eyes that followed his every movement as he worked his way alongside the coaches, taking tickets from excited travelers. He was the newly elected Master of Transportation for the first train placed in commission by the Mohawk & Hudson, which, in turn, was the first railroad opened for traffic in the State of New York. Mr. Clark got prompt action on his courteous "Tickets, please" requests. The eager prof-ferings of the passengers were, of course, a tribute to a celebrity; not a conventional response to a mere conductor's demand. At the conclusion of this ceremony, Mr. Clark marched proudly forward to a little platform immediately behind a tiny locomotive, took his seat between a cask of water and a small pile of wood, drew an imposing tin horn from his pocket and blew a long and resounding blast.

Dave Matthews, standing behind the boiler of the *DeWitt Clinton*, which he had built with his own hands at the West Point Foundry, was eagerly awaiting that signal. He pulled the throttle open with a vigorous jerk. The little locomotive leaped into action. One jolting shock followed another as the three long links of chain between each two cars lost their slack and straightened out for the pull. The passengers, unfortunately, were not prepared for this full-speed start. They were bumped violently together and a few were sent rolling on the floor as that great-grandfather of modern passenger trains made its first strenuous plunge down the iron-tipped wooden rails.

These minor mishaps were soon forgotten as the special pulled away from the cheering crowd. The passengers were launched on an adventure they could talk about as long as they lived. They were about to make the 16-mile run to Schenectady, the terminus of the road, in exactly 46 minutes. News of this daring race against time had spread through the country. Every mile of the Mohawk & Hudson right-of-way was lined with awed spectators. Those in wagons or on horseback urged their animals to the very edge of the track for a better view of an amazing event. This was a mistake promptly demonstrated when the *DeWitt Clinton,* at the top of its speed, came roaring down the rails. Respectably born and properly raised horses and oxen became violent neurasthenics when they sighted an indecent apparition vomiting red flames and white steam as it rushed upon them uttering strange cries of rage. One look was quite enough for the unsophisticated beasts of burden. They wheeled and broke for the wide, open spaces, throwing riders or smashing wagons as they fled.

These sights along the line of travel were lost on some of the passengers. The locomotive ahead was designed as a coal-burner, but anthracite proved entirely too hot for its grates. Engineer Matthews was forced to fall back on pitch pine for fuel. Maintenance of 50-pound steam pressure in his 115-gallon boiler required copious consumption of resin-rich wood. The stream of blazing cinders that went up the unscreened smokestack from this fierce generation of heat flew back over the train in a mighty shower. The pyrotechnic display passed over the head of the Master of Transportation and missed some of the travelers just back of the engine, but fell with deadly effect on the passengers assigned to open cars at the rear of the special or perched on the tops of the coaches ahead. These unfortunates, in intervals between fighting fires on themselves, proved good neighbors by slapping out flames that burst from their companions' clothing in spots the wearers could not reach. Owners of umbrellas hid beneath these coverings until blazing cinders burned them to the ribs. And then, five miles out of Albany, Engineer Matthews made his first stop.

It was a stop that merited comparison with the start. Beavers flew off and owners followed them to the floor as car after car slackened its coupling chains and crashed into the coach ahead. After an examination of their bruises some of the more energetic patrons of the road followed the example of the Master of Transportation, requisitioned rails from a farmer's fence and manufactured fenders that stopped all bumping by holding the cars rigidly apart. Their inventive talents could not, however, put an end to the cinder shower. Nevertheless, they descended proudly when they reached the end of the run and were lowered to their destination via a 115-foot inclined plane in little cable cars run by a 12-horsepower stationary engine. These cars were duplicates of the equipment that had dragged them up the 185-foot plane from the Albany depot to the Mohawk & Hudson main-line roadbed. The survivors of that first run were greeted as heroes. Brass bands and booming cannon welcomed them to Schenectady. Street parades, dinners and speeches rounded out the most eventful day in their lives. The tales of the adventure they told in the next few days created an immediate passenger traffic boom on the Mohawk & Hudson Railroad.

The opening of the new line between Albany and Schenectady was a first step in the creation of a mighty railroad kingdom to be known twenty-two years later as the New York Central System. Ten more links in the future chain speedily followed the building of the road between the rivers. They were the Schenectady & Troy; the Utica & Schenectady; the Syracuse & Utica; the Rochester & Syracuse; the Auburn & Syracuse; the Auburn & Rochester; the Buffalo & Lockport; the Mohawk Valley; the Rochester, Lockport & Niagara Falls; and the Buffalo & Rochester. Eight of these little roads provided a noncontinuous rail trip through the former confederacy of the Iroquois. They picked up passengers where the fierce Mohawks had guarded the eastern portal of the Long House, and deposited them at the gateway to the West where war canoes of the mighty Senecas once ruled the waters of an inland sea. Today, the whistle of the Twentieth Century Limited awakes echoes of the shrill whoops which once told Algonquins that the Five Nations had dug up the tomahawk.

History repeated itself when lines of rail doomed the glory of the Erie Canal. Again, the locomotive followed paths through the forests made by moccasin-clad feet. Just sixteen years after the *DeWitt Clinton's* memorable trial trip, an eloquent Cayuga chief voiced the redskins' lament for a mighty government that had yielded to the resistless thrust of the steam road.

"The Empire State, as you love to call it," he said, "was once laced by our trails from Albany to Buffalo; trails that we have trod for centuries; trails worn so deep by the feet of the Iroquois that they became your roads of travel, as your possessions gradually ate into those of my people. Your roads still traverse those same lines of communication which bound one part of the Long House to the other!"

The first unit of the future New York Central System was incorporated on April 17, 1826, almost a year ahead of the Baltimore & Ohio. The man responsible for the venture was George William Featherstonehaugh, an Oxford graduate who had moved to the New World and become a gentleman-farmer. His American estate was located just outside Schenectady. Reports of railroad building in his native land suggested to him the possibility of a road to Albany. He journeyed back to England in the summer of 1826 and made a careful study of the new transportation idea. The building of the Mohawk & Hudson reflected his suggestions, with modifications to meet local conditions.

The original route between Albany and Schenectady is not followed today by the New York Central. The utilization of inclined planes and stationary engines at both ends of the railroad enabled the builders to eliminate all really bad grades. The costliest cut in the original 16-mile roadbed was 47 feet deep, and the biggest fill was only 44 feet high. In 1830, the year before the *DeWitt Clinton* was purchased, horses jogging between rails along this practically level right-of-way pulled substantial loads with little effort.

The 11½-foot American-made locomotive first used on the line, in spite of mechanical defects, easily developed a speed of fifteen miles an hour while pulling heavy loads. The second locomotive, placed in service a year later, was the *Robert Fulton,* built in England by George Stephenson. It weighed 12,742 pounds, or almost twice the *DeWitt Clinton's* 6,758 pounds, but it could not compete with its American predecessor. It failed miserably on its first important test. The little *DeWitt Clinton* and several horse-drawn cars had to come to the rescue of passengers stalled behind the overtaxed *Fulton.* This may explain the fact that the Mohawk & Hudson clung to horses for reserve power throughout the first decade of its history. As late as 1839 the company spent $10,000 for horses, compared with $5,750 for steam power.

The second unit of the broken line to the Great Lakes, the Utica & Schenectady, was chartered in 1833 and opened for traffic on August 1, 1836. It covered a distance of 78 miles, or almost five times the length of the Mohawk & Hudson, along a right-of-way that is still followed by New York Central trains. On the first day of operation, excursionists from Albany found two locomotives coupled to ten-car sections awaiting their arrival at the Schenectady station. When regular service began between Albany and Utica passengers were, of course, compelled to change trains and purchase new tickets at Schenectady. This tiresome procedure was followed over the eight connecting roads from the Hudson River to Lake Erie until they were merged into the New York Central Railroad in 1853. The Mohawk & Hudson management endeavored, however, to make close connections at Schenectady. This ambition compelled westbound trains to leave Albany at eight o'clock in the morning and two o'clock in the afternoon. When this schedule was announced it aroused a storm of protest. Indignant Albany citizens promptly pointed out the obvious fact that such departures would interfere horribly with the "usual hours for breakfast and dinner."

The third unit of the future Vanderbilt system, the 53-mile road connecting Utica with Syracuse, was incorporated in 1836 and opened for business on July 3, 1839. This small line has one unchallenged claim to fame. Its first president, John Wilkinson, was the father of the society for the prevention of passes. His protests against free transportation for newspaper editors, local judges, state militia officials and "Aaron Burr's daughter's wedding party" fairly sizzled. He kept a diary in which he recorded the number of persons carried free each day. March 10, 1846, was a red-letter date. The diary entry reads: "Not a single dead-head today!" He relaxed on other occasions and approved passes for "five mutes," "one poor crazy man," "six blind girls" and "a poor woman with a small infant." It is a pleasure to record that President Wilkinson won his long-drawn-out one-man war in 1849. Thereafter, only "officers and men in the service of the company" were carried free on the Syracuse & Utica.

The last link between river and lake, the Utica & Buffalo, later absorbed by the Buffalo & Rochester, was opened in 1842. The completion of this little road did not bring through train service between Albany and Buffalo. Rochester held out even after all other upstate cities reconciled themselves to the inevitable. The New York state legislature had to pass a special law to eliminate this final barrier against through train service. The traveling public rejoiced on May 17, 1853, when all the small rival roads were merged into the New York Central. There was cause for greater rejoicing a dozen years later when Commodore Vanderbilt bought $18,000,000 of the new system's $24,000,000 of capital stock, consolidated it with his New York & Hudson River Railroad, and announced through service between New York and Buffalo.

The modern New York Central lays no stress on the fact that the first link in its mighty chain dates back to 1826. The five years that lapsed between the chartering of the Mohawk & Hudson and the trial trip of its first locomotive presents, of course, something of a blemish in the family record. Other roads attach more importance to claims of antiquity. Curiously enough, this very young nation has long prided itself on events that begin to assume a suggestion of venerable age. "First" and "oldest" are favored words in all histories of American railroads. The second of these adjectives is chosen by a majority of writers who chronicle the activities of the Baltimore & Ohio. But even an elimination of the New York Central from consideration will not give its neighbor across the Hudson an undisputed right to call itself "the oldest railroad in the United States."

Friends of the B & O admit that the Granite Railroad of Massachusetts and two or three other enterprising young companies moved cars over rails before the B & O charter was granted. However, they dismiss these activities from consideration because they were merely incidents in the operations of private undertakings without significance in the history of transportation. They cite charter and construction dates to back their contention that the rock-ballasted right-of-way connecting Chesapeake Bay with the Middle West blazed the way for the big railway systems of today. This claim has been conceded by most historians. The Baltimore & Ohio is almost invariably described as the pioneer road.

If birth dates are based on charters, the Baltimore & Ohio has an edge on the Southern, the Lackawanna, the Atlantic Coast Line and the Louisville & Nashville. The B & O charter was granted on February 28, 1827, ten months before the South Carolina Canal & Railroad Company was authorized on December 27 to build a road from Charleston to Hamburg. One of the other roads was born in 1828 and two in 1830. There remains, however, the case of the Pennsylvania Railroad, for which a charter was granted on March 21, 1823. It is true that John Stevens, beneficiary of this charter, merely surveyed the authorized line from Philadelphia to Columbia and never broke ground for the road. Nevertheless, the original plan was retained in the act of the Pennsylvania legislature passed on March 24, 1828, which authorized state construction of the road. Work was begun in April, 1829; fifty miles were completed before the end of the year; and horse-drawn cars were operated on May 1, 1829. The original line from Philadelphia to Columbia was subsequently taken over by the Pennsylvania Railroad of today. Thus, a direct line of descent might be traced back to 1823, one month less than four years before the birth of the B & O.

Charters, of course, were minor incidents in the early days of the railroad industry. As a matter of fact, the State of New Jersey authorized on February 6, 1815, the construction of a railroad from New Brunswick to Trenton. This was the first railroad charter ever issued in the United States. Actual construction, not charters, seems a fairer standard of rail longevity. Here is a weakness in the claim that has been made in behalf of the B & O.

The Baltimore & Ohio ground-breaking ceremony was staged on July 4, 1828. A short stretch of track was laid in the streets of Baltimore in the fall of 1829, but actual construction of the first stretch of right-of-way, the 13 miles from Baltimore to Ellicott's Mills, was not completed until May 22, 1830. The rails were extended to Frederick, a distance of 62 miles, in 1832. Harpers

Ferry, only 84 miles from Baltimore, was not reached until December 1, 1834. Meanwhile the Charleston & Hamburg, after a slow start, was making the dirt fly. In December, 1830, it was six months and six miles behind the B & O. This handicap was more than wiped out in the next three years. The South Carolina railroad ended construction in September, 1833. Its full length of 136 miles was operating at top speed one year and three months before the Baltimore & Ohio began running trains over the 84 miles from Baltimore to the confluence of the Shenandoah and Potomac rivers. Twenty more years rolled around before B & O tracks finally reached the Ohio.

The Baltimore & Ohio began moving horse cars over the 13 miles of rails between Baltimore and Ellicott's Mills on May 24, 1830. The Pennsylvania Railroad, under state management, ran cars drawn by horses over 40 miles of completed track on May 1, 1829. Even an elimination of the Pennsylvania charter of 1823 cannot wipe out the fact that a Pennsylvania company was operating cars on rails a year and twenty-three days before the Baltimore & Ohio began regular service.

The Baltimore & Ohio set a record on Saturday, August 28, 1830, when it ran the first American-made locomotive, the *Tom Thumb,* over its new roadbed. The Charleston & Hamburg trailed three months and four days behind. It was not until November 2, 1830, that the South Carolina road gave the *Best Friend of Charleston* its trial trip. On the other hand, the *Tom Thumb* might be classed as an experiment. The *Best Friend of*

Charleston was, of course, built for permanent use. The Charleston & Hamburg began scheduled operations with locomotive power on January 15, 1831. This was the first regular passenger and freight service on an American steam railroad. It should give the Southern Railway a potent talking point in friendly arguments with the B & O.

There is this to be said for the railway that opened the Baltimore market to products of the Middle West. Its main line was not laid through flat country and its empire was not built on mergers of tiny units. The Baltimore & Ohio fought its way over rivers and through mountains to reach its goal. The road's brilliant pioneer surveyors taught future builders the real possibilities of railroad engineering. It was handling heavy traffic with efficient equipment of its own invention when older lines were merely headed for absorption by modern transportation systems. It was an important carrier before its historic rival, the Pennsylvania, was ready for the race. It was a substantial corporation before the Erie abandoned a roadbed built on piles. And young Pierpont Morgan, future creator of the Southern Railway, was studying the intricacies of banking in New York when Baring Brothers of London put the Baltimore & Ohio on its feet.

Railroad promotion was a haphazard undertaking a hundred years ago. Construction was begun without capital and before the builders actually knew where their right-of-ways would end. The Pennsylvania made Pittsburgh its objective and just missed becoming a route to San Francisco. The B & O aimed at the Ohio and hit the banks of the Mississippi. The New York Central, born to compete with the Erie Canal, lived to wander through Canada and dive under a river en route to Chicago. Even greater miscalculations must be credited to various so-called incubator roads that began life with a flourish and were swiftly forgotten. In this list, however, will be found the modest origins of numerous famous modern railway systems.

CHAPTER V

Tiny Acorns That Became Great Oaks

The Aristocracy of New Orleans, or that part of it which had not fled north to escape the worst month of a Louisiana summer, was out in force on a blazing September morning in 1831. Haughty Creole beauties in diaphanous creations designed by the most eminent couturiers of Paris peered at the proceedings from the protection of lace-edged parasols. Their black-coated escorts, fire-eating young cavaliers of the Andrew Jackson period, bustled about, conferring with officials of the newly completed railroad. Most of them were included in the list of three hundred lucky guests invited to make the first trip behind the much-discussed *Pontchartrain*, a glittering little locomotive just in from England, which would pull an imposing special train from the Crescent City to the big lake four miles to the north for which the new engine was named.

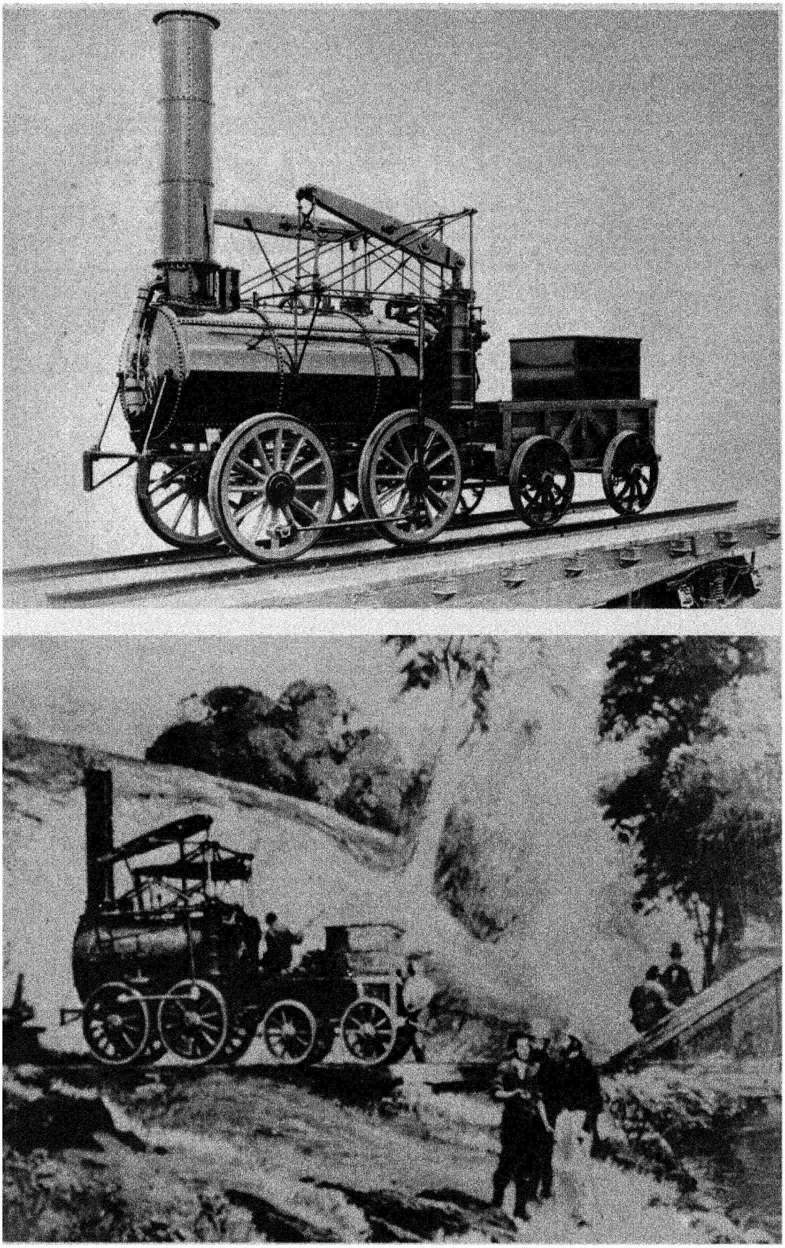
The *Pontchartrain* responded nobly when the first railroad conductor ever seen in the deep South gracefully raised his right arm and gave the man at the throttle a signal later known as the high-ball. The twelve-car train, packed with blue-blooded beneficiaries of the newly invented pass, was a heavy load for the tiny locomotive. The *Pontchartrain* puffed and snorted and spat fire as it rolled along the rails. An energetic slave, acutely aware of the terrific responsibility that rested on his powerful shoulders, hurled stick after stick of resinous pine wood under the boiler. It was up to him to see that the quality in the coaches behind were not late for the midday banquet that awaited them on the shore of the lake.

A less conscientious fireman might have proved a better selection for this particular job. The roaring flames from the pine wood under the boiler sent back showers of sparks that set the coaches on fire. The noise and smoke and screaming steam scared the wits out of all the stoker's fellow slaves on near-by plantations. One pickaninny, wandering along the track and too badly frightened to jump from the right-of-way, was run over and killed. The climax came when the first special train ever run on the Pontchartrain Railroad encountered a cow, head-on. History does not record the fate of the reckless animal. The new locomotive, however, rolled into the ditch. The trial run to Lake Pontchartrain was not a complete success.

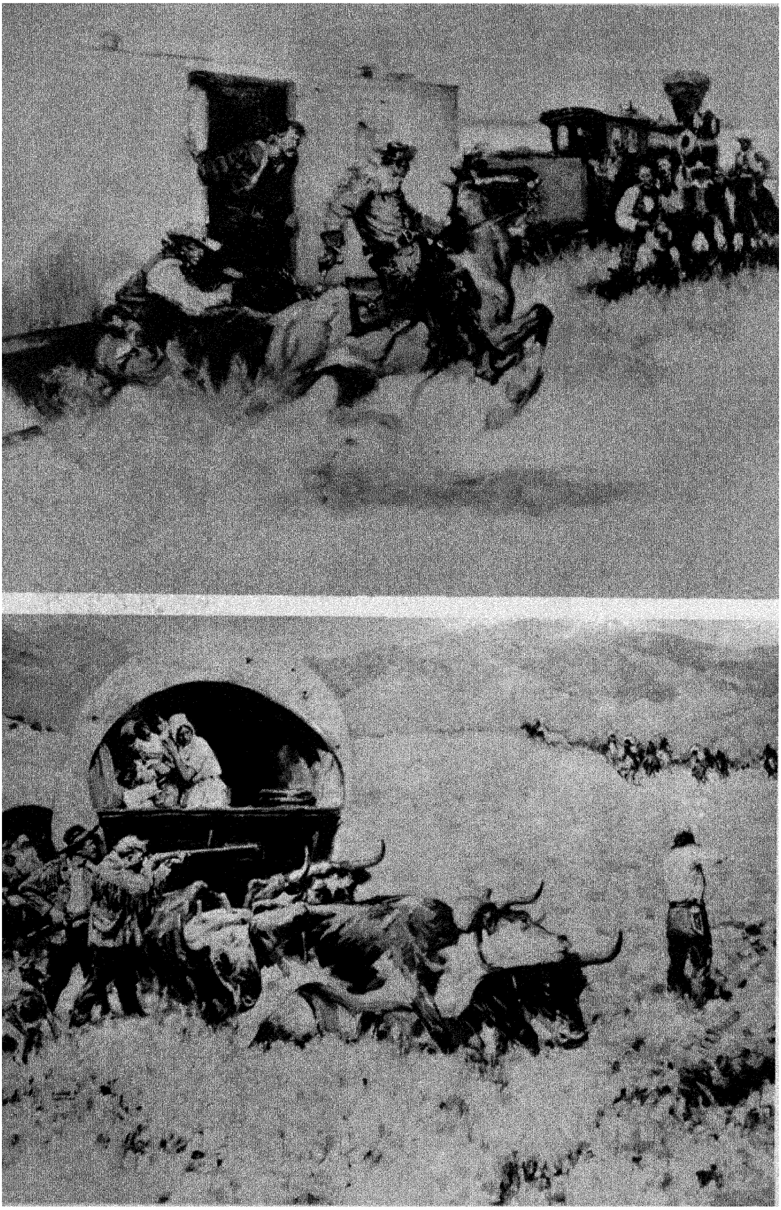
The 4-mile railroad that suffered this series of humiliating mishaps was chartered on January 20, 1830. Construction was begun on the tenth day of the following March. The road was formally opened for traffic on April 23, 1831, when cars pulled by horses made the round trip between lake and metropolis in two hours and an undetermined fraction. This achievement earned for the little line the right to call itself "the first railroad west of the Alleghanies." Forty-eight years later it was absorbed by a giant corporation, and must go into history merely as one of the original units of the Louisville & Nashville Railroad.

The second railroad built beyond the mountains, and one of the oldest units in the present L & N system, was the Lexington & Ohio, incorporated on January 27, 1830. This enterprise was born because Lexington, a wealthy and cultured community in early Kentucky days, found itself falling behind Cincinnati and Louisville, two thriving villages on the banks of the Ohio. The small inland city's business leaders felt that a railroad to the river would save their situation. They set the capital for their project at $300,000 and invited their friends and neighbors to enter orders for the stock. Before the end of the week the new issue was more than $11,000 oversubscribed. Elisha I. Winter, who had played an active part in the promotion, was elected first president of the road and Henry Clay became the most distinguished member of its board of directors.

The Louisville & Nashville, incidentally, did not begin life as energetically as did its two oldest units. It received a charter from Kentucky in 1851. When the new company offered stock for sale 1,058 shares were taken, but the subscriptions actually paid in totaled only $58, which, less selling expenses of $35.45, left a little more than $22 for the creation of a great rail system. However, the City of Louisville underwrote $1,000,000 of the issue. Construction was begun in April, 1853, and was pushed persistently in the next four years. On November 1, 1859, a through train from Louisville arrived in the



(Above) The "Stourbridge Lion," first commercial locomotive on American rails, and (below) an artist's vision of Horatio Allen's history-making run.



(Above) The Pony Express takes over the job at the end of the iron trail. (Below) Transcontinental rails followed trails worn deep by the creaking wheels of prairie schooners. From Frank B. Hoffman's painting, "And so the West Was Won."

Tennessee capital, at that time a community of 10,000 inhabitants.

The population of the territory traversed by the new railroad was intensely interested in the building of the Louisville & Nashville. Local citizens in Marion County, Ohio, impatient with the slow progress of the contractors, took over their job, completed a difficult piece of roadbed and laid the last rails into Lebanon on October 30, 1857, just one day ahead of a time limit on which hinged an important cash bounty to be paid the road by the treasurer of Marion County. In this same year, it might be added, the Louisville & Nashville leased the Memphis & Ohio. Twenty-three years later, in 1880, the fast-growing trunk line took over the Pontchartrain Railroad and the Louisville, Cincinnati & Lexington, thus acquiring the original Kentucky line that honored itself by electing Henry Clay to its board of directors.

Virginia, oldest state in the South, permitted Maryland and South Carolina to blaze the way to modern transportation facilities. Eventually, a group of energetic citizens in the lower half of the Old Dominion set an example for Richmond capitalists. On February 10, 1830, the Petersburg Railroad was authorized to build a line to Weldon, North Carolina. Six years later, a connecting line was run to the capital on the banks of the James. Within a few years these two roads and a few small rivals became known to fame as the Great Atlantic Route, connecting Richmond and Charleston. The trip between these two important cities was continuous, notwithstanding the fact that all tracks north of Wilmington conformed to the 4-foot, 8½-inch gauge, while rails below the North Carolina capital were set 5 feet apart. The operation of through service was accomplished by changing trucks under the cars when the trains reached Wilmington. This absurd expedient persisted until 1886.

In 1898 the Petersburg Railroad and the Richmond & Petersburg were merged into the Atlantic Coast Line Railroad of Virginia. A few months later the connecting roads farther south followed suit and called their consolidation the Atlantic Coast Line Railroad of South Carolina. In 1900 these state-named systems and a few connecting feeders becamc the present Atlantic Coast Line System, with a modern double-track roadbed from Richmond, Virginia, to Jacksonville, Florida.

If the consolidation of railroads ever progresses beyond academic discussion, the Atlantic Coast Line will probably absorb its unlucky rival, the Seaboard Air Line. This system was born in 1832, when the State of Virginia authorized the construction of a line from Portsmouth, just across the Elizabeth River from Norfolk, to a point "somewhere on the Roanoke River" in North Carolina. The promoters were not particularly interested in traffic possibilities beyond the points named in their charter. What they really planned was a line from Portsmouth, Virginia, to Weldon, North Carolina. Work on the new road began in 1834, and was finished in 1835. One locomotive, the *Raleigh,* was imported from England to handle all hauls. This duty, apparently, did not overwork the little engine. The new railroad soon developed dry rot. It was sold at auction in 1846, and ultimately became a unit of the Seaboard & Roanoke Railroad Company.

This transportation company was even more upset by the Civil War than railroads further south. As it happened, the control of the corporation was almost evenly divided between Northern and Southern interests. When Virginia seceded from the Union, half of the officers and directors were behind Lee's army and the other half were left high and dry north of the Mason and Dixon Line. The president of the road, supported by a minority of directors, held meetings in Richmond and declared dividends in Confederate currency. The treasurer of the company and a majority of the directors, ignoring these activities down South, held simultaneous meetings in Philadelphia and declared dividends payable in money backed by the Washington government.

New England was slow to follow the lead of the South in transportation experiments. The example set by the little Granite Railroad was ignored until June 23, 1831, when a few daring souls obtained a charter for the Boston & Worcester. A brave beginning was made, but at the end of two years only 7 miles of track had been laid. The new line, the first steam railway offering passenger service in the land of the Pilgrims, was finally opened for traffic on April 16, 1834. The pace began to accelerate four years later when the Western Railroad was built from Worcester to Springfield. On December 21, 1841, rails were laid as far as Albany, and ten days later through freight service from the metropolis of New England to the capital of New York was announced. This was the beginning of the Boston & Albany Railroad.

The present Boston & Maine Railroad was begun by a merger of the Andover & Haverhill with the Boston & Portland. The new line soon absorbed the Boston & Lowell. In 1838 the Eastern Railroad, built between East Boston and Salem, was purchased. This line, it seems reasonable to believe, lacked absolute confidence in its roadbed and equipment. A standing order to its Masters of Depots required these gentlemen to develop an attitude of suspicion "if at any time a train should not arrive at either depot in one hour from the time of its starting from the other." On these occasions, the orders read, the master must mount a horse, invade the line of the right-of-way and "ascertain the cause of the delay." This system undoubtedly made Masters of Depots expert horsemen.

Two experiments up in Maine, the Calais Railroad and the Old Town Railroad, were chartered in 1832. The former, only 10 miles long, was a horsepower road for twenty years. The promoters of the second company exhausted their energies on the preparation of plans. The road was never built. A third line, the Whitneyville & Machiasport, built in 1842, was a lumber carrier. The public, however, was invited to ride free. The engineer was a courteous gentleman. Although he merely slowed down for active young passengers of his own sex, he invariably brought his train to a full stop when hailed by a woman, or even an elderly male deadhead.

New England's outstanding railway system, the New

York, New Haven & Hartford, can trace its genesis back to a charter issued on June 21, 1831. The beneficiary of this legislative act was the Providence-Boston Railroad & Transportation Company, which was authorized to build a 45-mile track between the two dominant cities of these neighboring states. The new road, which was opened in 1835, soon became known as the Boston & Providence.

Middle Western railroads, while far younger than their connections to the Atlantic Seaboard, have some claims to antiquity through lines they absorbed when they outgrew their original territory. The oldest unit of the Illinois Central, for example, was chartered in 1831 by the State of Mississippi. This line was the Clinton & Vicksburg. After a feeble effort to construct a roadbed through neighborhood cotton plantations, the embryonic carrier was purchased by the Commercial & Railroad Bank of Vicksburg, and was eventually taken over by the Illinois Central.

Two years after the Clinton & Vicksburg came into existence the Territory of Michigan authorized construction of a railroad from Detroit to Lake Michigan. It was called the Detroit & St. Joseph. Three years later, when Michigan became a state, this feeble pioneer project went under government control and was renamed the Michigan Central. Even that experiment failed. In 1845 the Michigan Central was sold to a syndicate headed by John M. Forbes, a Boston banker, for $2,000,000, which was considerably less than half it had already cost the state. Incidentally, Daniel Webster was brought on from

Boston to draw up the charter. The new owners pushed construction toward Lake Michigan, and seven years later the first Michigan Central train to enter Chicago rolled along Michigan Boulevard over the rails of the new Illinois Central.

The modern Norfolk & Western Railroad is another system with roots that tapped colonial soil in the early days of steam transportation. One of them, a 10-mile line, was chartered by Virginia in 1836 as the City Point Railroad. Work on a roadbed from Petersburg to a point on the James River "at or near City Point" was begun in April, 1837. A year and a half later the enterprising little carrier owned two locomotives, three passenger coaches, twenty-eight freight cars and a staggering debt. It employed one superintendent, one engineer, one fireman, one "captain of the train," one overseer, one watchman and six laborers. What the City Point Railroad needed more than anything else was a resourceful treasurer. The management found itself harassed at the very beginning of operations by the activities of the Petersburg Towing Company, a soulless corporation that set up disastrous competition by cutting rates on its steamboats, lighters and arks.

The City Point Railroad met this situation by purchasing its rival at a rather stiff figure. The price was unimportant, however, because the buyer not only lacked an investment fund but was actually short of cash at the moment. Debts continued to pile up until 1847, when the unhappy little jerkwater, as unkind critics called it, went into bankruptcy and was taken over by the City of

Petersburg. It was reorganized as the Appomattox Railroad and sold in 1854 to the South Side Railroad. Twenty-seven years later it became a decidedly unimportant unit of the Norfolk & Western System.

There were two occasions in its troubled history, however, when the tiny road was swamped with traffic. It carried supplies for the Union Army when General Grant made his headquarters at City Point. A half-century later the duPonts established a munitions plant at the end of the line and built the town of Hopewell to handle orders from the Allies in the second year of the World War. The boom in freight traffic that followed compelled the Norfolk & Western to double-track the little feeder. In 1918 the former City Point Railroad established a worth-while record. It handled 200,000 tons of freight in less than twelve months. That volume of business would have cheered the management no end back in 1847.

Another modern railroad which, like the Norfolk & Western, has taken its most profitable traffic from coal mines, traces its origin to January 28, 1828. On that particular date the New York legislature chartered the Ithaca & Oswego. Fifteen years later the line was absorbed by the Cayuga & Susquehanna Railroad. The combined roads were subsequently picked up by the Ligget's Gap Railroad, a line that ran from Providence (now Scranton) to Great Bend, a river town on the Susquehanna. On October 16, 1851, a trainload of anthracite moved out of Scranton over these consolidated roads to Ithaca, where a connection was made with Erie Canal boats, thus completing a continuous coal movement from mines to tidewater. Scranton owners, proud of this achievement, decided that the Ligget's Gap line deserved a more impressive name. So they called it the Lackawanna & Western. In 1853, when additional properties were purchased, the name was again changed, this time to the Delaware, Lackawanna & Western.

The Lackawanna has not enjoyed a monopoly on anthracite coal. A potent rival developed from the original cable-car activities that antedated locomotives in American railroad history. On April 21, 1846, Edward R. Biddle, a Philadelphia banker, obtained a charter for the Delaware, Lehigh, Schuylkill & Susquehanna Railroad, a new line to tap the anthracite fields. The route surveyed ran from Mauch Chunk to Easton, at the confluence of the Lehigh and Delaware rivers. The project dozed for five years until Asa Packer, a boat operator for the Lehigh Canal & River Company, formed a syndicate and acquired the stock of the Biddle road from its original subscribers. He renamed his project the Lehigh Valley Railroad and completed construction between Mauch Chunk and Easton. The new line prospered and gradually extended its tracks throughout the anthracite coal regions of Pennsylvania, up the historic Wyoming Valley to the Finger Lake region of western New York and as far as the suspension bridge overlooking Niagara Falls. This terminus brought brides and grooms as well as anthracite coal to the busy rails of the Lehigh Valley System.

CHAPTER VI

This Is the Road the Bride Built

Everyone in the lobby of the old Charleston Hotel in Meeting Street was talking about the opening of the new railway and how difficult it would be to obtain seats for the first trip on the 6-mile stretch of completed road. Mr. and Mrs. Henry L. Pierson, a bride and groom of Ramapo, New York, were in Charleston, and they were still billing and cooing in the early days of January, 1831, but exciting predictions of the thrills they would feel behind their first locomotive could not be ignored. The newlyweds abandoned for the moment their analyses of heart throbs and set out in search of reservations. Influential friends in the South Carolina metropolis came to their assistance. When Engineer Nicholas W. Darrell took the throttle of the *Best Friend of Charleston* that historic winter morning of January 15, 1831, the bride and groom occupied seats in the first coach, holding hands and hoping they would die together if their great adventure was headed for a tragic end.

As readers of history know, all went well on the day the Charleston & Hamburg Railroad inaugurated passenger service. As a matter of fact, the bride and groom were strenuous steam-railroad enthusiasts when they emerged alive from their flirtation with death. Pretty Mrs. Pierson could talk of nothing but rails and locomotives when at the end of their honeymoon she and her young husband returned to her father-in-law's home near Ramapo. It was a sin and a shame, she said, to let South Carolina get so far ahead of New York. With a road of their own and a locomotive as good as the one behind which she had traveled out of Charleston, the people who lived on the banks of the Hudson could journey to Buffalo in twenty-four hours. Her father-in-law, Jeremiah Pierson, a man of great wealth, and her brother-in-law, Eleazar Lord, a New York City financier, smiled tolerantly at this reckless statement. Nevertheless, they were impressed by the bride's enthusiasm and listened eagerly to her recital of the marvels performed by the *Best Friend of Charleston.*

Those long winter evening talks in her father-in-law's home finally bore fruit. Within six months a first step was taken toward the building of a transportation system that became the first trunk line to the West. Mrs. Pierson did not foresee, of course, the political pitfalls and money madness destined to beset the road of her dreams. She was a middle-aged woman when she made her first trip on the completed line of iron rails. And she lived to hear the project born of her honeymoon adventure described by cynics as the Wanton of Wall Street. For "The Road the Bride Built," as friends of the Pierson family affectionately dubbed it, took its place in history as the New York & Erie Railroad.

Jeremiah Pierson had a practical interest in transportation. He owned and operated a nail factory, a cotton mill, tanneries and iron works. His son-in-law, Eleazar

Lord, was interested in New York City mercantile activities. A line from a point on the Hudson River opposite Manhattan, through the Ramapo properties, and providing a Western outlet for their manufactures and merchandise, would aid the fortunes of both men. There was youthful Henry Pierson, also, to be considered. He had caught some of his bride's enthusiasm about railroads. Possibly the new industry would provide a profession for the young man.

This talk of a road from river to lakes was an old story to Pierson. Back in George Washington's administration, James Clinton, father of Governor DeWitt Clinton, had asked the first Congress to authorize a great highway from Lake Erie to the Hudson River. Just two years before the opening of the Charleston & Hamburg Railroad, William C. Redfield, first president of the American Association for the Advancement of Science, had published a pamphlet advocating a railroad to "open a free communication at all seasons of the year between the Atlantic states and the great valleys of the Mississippi." Such a road would, of course, supplement the Erie Canal, completed only four years before the Redfield brochure was penned. So Jeremiah Pierson began pulling strings.

Eleazar Lord took charge of the publicity campaign. He wrote to influential citizens in the tier of southern counties across the State of New York. Public meetings in behalf of the project were staged at Monticello, on July 29, 1831; at Jamestown, on September 20; at Angelica, on October 25; and at Oswego on December 20.

A charter was drafted by John Duer, of New York City, and on April 24, 1832, the New York state legislature authorized construction of the New York & Erie Railroad.

This particular spring day marked the beginning of misfortunes that have dogged the Erie throughout its history. It was also a red-letter day in the record of political manhandling of American railroads. Albany representatives of upstate counties could not block the authorization of the Erie, but they did the next best thing. Fearing this proposed rival for the Erie Canal, they wove into the charter a provision that the entire $10,000,000 of capital stock must be subscribed and $1,000,000 in cash paid into the treasury before the incorporation would become effective. This, the lawmakers from canal counties felt, would kill the Erie undertaking. A battle royal between the northern and southern counties was fought in Albany throughout the succeeding legislative days. Eventually, the minimum subscription was reduced to $1,000,000. On August 9, 1833, the new company was organized, with Lord as the first president, and surveys were begun. Ground for the roadbed was broken on November 7, 1835, in the vicinity of Deposit, a Delaware River town near Binghamton. Subscriptions were slow and payments were few and far between. And then came the panic of 1837 which put an end to the drive for funds.

On February 14, 1839, a bill to kill the Erie franchise was narrowly defeated in the state legislature. A few weeks later construction was begun under a plan originally proposed by Lord. This provided for the building of the first 10 miles of roadbed with subscriptions raised in New York City. Rockland and Orange counties were asked to build the connecting 36 miles to Goshen. Middletown was called on to defray the cost of the next 9-mile stretch.

The Erie began in a swamp on the banks of the Hudson, about 24 miles up the river from Jersey City. Its western objective was Dunkirk, a tiny village on the shores of Lake Erie, about 500 miles away. The eastern terminus was called Piermont, because it possessed a wharf in front and a hill behind. The builders elected to use a 6-foot gauge for their rails, which they nailed to piles driven deep into the soft soil under the track. It cost the promoters a lot of money to discover that rock-ballasted crossties, not piles, were required for a practical roadbed. The 6-foot gauge ran them into a vastly greater loss. When the right-of-way reached Middletown, Major T. S. Brown, the chief engineer, made a valuable suggestion to the board. The 6-foot gauge, he said, was a mistake. The Erie, eventually, would have to conform with the 4-foot, 8½-inch gauge that other pioneer roads in the Eastern states had borrowed from England. In the 55 miles actually built, he could make the change at a cost of $250,000. A quarter of a million was a lot of money in the eyes of the directors. They rejected the proposal. Forty years later the Erie shifted to the 4-foot, 8½-inch gauge at a cost of $25,000,000.

The Erie changed presidents faster than it changed its mind on the subject of construction. Lord was elected to office on August 9, 1833, and resigned at the January meeting in 1835. He was succeeded by J. G. King. On October 4, 1839, Lord again became president. Horatio Allen, having completed the Charleston & Hamburg, followed him into office. Then Allen resigned and Lord became president for the third time. His next successor was Benjamin Loder, a New York dry-goods merchant with a flair for finance. Under his administration the Erie, drifting rapidly into bankruptcy, was put on its feet with a $3,000,000 loan. This, of course, was before the advent of Daniel Drew, a treasurer who could have wrecked any railroad under any president. These remarkable changes of administration went hand in hand with hopeless delays in construction.

On June 30, 1841, in the second regime of Eleazar Lord, the Erie Railroad reached Ramapo, 10 miles from its starting point, and Jeremiah Pierson staged a big party to celebrate the event. Three months later trains were running over 46 miles of track between Piermont and Goshen. Seven years later, on December 27, 1848, the rails reached Binghamton, 216 miles west of the Hudson. On December 31, 1849, the road was built into Corning, 169 miles short of its goal. On April 19, 1851, the last spike was driven at the little town of Cuba, New York, and news of the victory was flashed to Millard Fillmore, President of the United States.

Fillmore was asked to head an excursion over the completed railroad. He accepted in behalf of himself and his official family. On the afternoon of May 13, 1851, the steamer *Erie* met the Washington party at Amboy and headed for New York. The Chief Executive was accompanied by Daniel Webster, Secretary of State; W. C. Graham, Secretary of the Navy; John J. Crittenden, Attorney General; W. K. Hall, Postmaster General; and a group of celebrities that included six candidates for Millard Fillmore's job, twice as many vice-presidential candidates and a big delegation of senators and representatives.

The party from Washington spent the night in New York and departed at six o'clock next morning by boat for Piermont. Two hours later the first through passenger train from the Atlantic Ocean to the Great Lakes pulled out of Piermont with President Fillmore aboard. It was followed after a seven minutes' wait by a second section, which challenged equal attention along the line. Daniel Webster was the star attraction of the number two train. The feeble old statesman and orator sat in a comfortable rocking chair fastened to a flatcar from which he could see the beautiful scenery along the Erie right-of-way. A third and easily the most important guest of honor was Mrs. Henry L. Pierson, the bride of more than twenty years before. She was still a good-looking matron. And she still gazed fondly on her husband, now an officer and director of the great Erie Railroad.

An assignment as engineer of a presidential special is no novelty today. Eighty-odd years ago, however, it was a genuine distinction. That is why Gad Lyman, who pulled the first section out of Piermont, was a bit excited as he picked up speed for Goshen and points west. He was riding a new locomotive, a Rogers No. 100, in which he placed implicit faith. He could, he said, pull the Hudson River up by its roots with this noble metal steed. He was given the Rogers for this run because he had turned thumbs down on a new Swinburne engine, No. 71, against which he had voiced a violent denunciation. On the strength of his adverse report, the Swinburne was condemned as practically worthless and became an extra entrusted to Engineer Josh Martin. There was a bitter rivalry on at the time between the manufacturers of Swinburnes and Rogerses. Martin, as it happened, was a friend of Swinburne and felt that the locomotive builder had been done an injustice when the Rogers locomotive was substituted for the 71 on the strength of a prejudiced opinion. Retribution, as it happened, was hot on the trail of the man at the Rogers' throttle.

Engineer Lyman was quite happy as he hummed along on the first stretch of his run. His mood changed when the new Rogers locomotive began to emit symptoms of distress and finally refused to take an insignificant grade. Gad had to issue an S.O.S. An engine, borrowed from a disreputable-looking gravel train, helped him into Port Jervis, where he found Erie officials fuming over the fact that the Fillmore special was more than an hour late. The crack engineer's cup of humiliation overflowed when he found Josh Martin perched up in the cab of the despised 71 waiting to take the train. Just before the journey was resumed, manufacturer Swinburne, who was a passenger on the special, hurried forward and climbed aboard the locomotive that bore his name.

"Is she in good shape, Josh?" he asked.

Engineer Martin grinned cheerfully.

"Swinburne," he said, "I'm going to make you famous today, or break my neck in the attempt."

The train crew as well as the passengers behind began to reach for something solid to which they could cling as Josh Martin eased the 71 into high. He took that heavy train over the next 34 miles into Narrowsburg in exactly 35 minutes. No such speed had ever before been developed on any American railroad. Swinburne couldn't believe his own watch, and the Erie officials aboard the train were literally stunned with amazement. Josh Martin continued to grin and crowd the rails. He kept his throttle wide open over the next 54 miles, while his fireman jammed the steam pressure beyond the limits of safety. As the big first section roared into the last mile of its record-making run, Swinburne snapped the cover of his watch and began beating Josh on the back. That daredevil driver had made up the hour lost by Gad Lyman east of Port Jervis. The Millard Fillmore special, with flames shooting from its axles, rolled to a grinding stop in Deposit exactly *on time.*

The run to Dunkirk required two days. The first night out was spent at Elmira, 274 miles west of the Hudson. The two-section excursion train arrived at the shore of Lake Erie on Thursday afternoon, May 15, and the party was on. Two oxen, ten sheep and more than a hundred chickens and duck were slaughtered for the banquet. Ten-foot loaves of bread, huge tanks of coffee, barrels of cider and tons of tongue, sausage, corned beef and ham added variety to the barbecue. Daniel Webster was particularly interested in the beans and clam chowder, each cooked in 50-gallon vessels. The elder statesman had only one criticism to voice. The clam chowder, he pointed out, could be improved by judicious dashes of sherry. Which proves that the revered Mr. Webster was a cook as well as an orator.

It would be a pleasure to report that the Erie officials, flushed by the success of their Dunkirk celebration, lived happily ever after. As a matter of record, the unfortunate first trunk line built in America has been plagued throughout its existence by financial problems and the machinations of unscrupulous politicians. New York lawmakers, apprehensive that Philadelphia or Boston might capture some of the state's precious traffic, enacted a measure that prohibited the Erie, under penalty of forfeiting its charter, from making connections with any other railroad. This was an excellent precedent for later national legislation that stopped logical railroad consolidations which are now strongly advocated by the Interstate Commerce Commission and opposed for obvious reasons by the big brotherhoods of railway employees.

New York State pride forced the Erie to locate its eastern terminus 24 miles north of the city from which it drew its essential traffic. Albany overlooked one possibility of correcting this absurdity when it forbade the Erie to make connections. On February 10, 1851, the line to the lakes bought the Paterson & Hudson and Ramapo & Paterson railroads, thereby obtaining a right-of-way into Jersey City, opposite Manhattan. Piermont, of course, registered a protest against this constructive step and asked the Albany legislature to force all Erie trains to use the original terminus. Popular opinion on this occasion came to the rescue of the harassed management and Piermont went to the discard. In the next three-quarters of a century, however, the Erie Railroad was dragged through every court in sight. Legal and financial puzzles proved more baffling than transportation problems.

Incidentally, the Erie has a remarkable record as an inventor of railroad improvements. One of her division superintendents blazed the way for telegraphic train control. The ticket punch, air conditioning, water tanks, syndicate construction of roadbeds, iron bridges and bell-cord signals to engineers are just a few of the many new ideas devised by the road that was born of a honeymoon. The men responsible for these novel devices were frequently compelled to back their brain children with fists.

Train conductors of early railroad days had no means of communicating signals to the men at the throttle on runs between stations. The gentleman on the locomotive platform was an absolute autocrat who looked down with disdain on the collector of fares. One lowly conductor on the Erie, Henry Ayers, decided in the spring of 1842 that this lack of contact was an unnecessary handicap. He was sure he could work out some plan to let the engineer know that passengers were approaching their destinations. After careful thought he ran a cord from the caboose to the engine and tied a stick to the forward end. When the engineer saw this bit of wood jerk up and down he would know that the train must stop.

The man behind the boiler, one Jacob Hamel, was a thick-skulled German. He saw no merit in the Henry Ayers invention. He regarded it as nothing less than an assault on the dignity of his own position. When the conductor retired, the engineer disconnected the stick, threw it away, and tied the cord to a convenient rod. Naturally, the first signal attempted by Ayers was not altogether a success. The train conductor made no comment, but hooked up the cord again next morning. And again the stick was thrown away. On the third morning, before leaving Piermont, Ayers assumed the role of fortuneteller. If the signal didn't work on this particular trip, he told Jake Hamel, a certain representative of the Teutonic race would become the receiving end for Anglo-Saxon fists.

When the train reached Goshen, Conductor Ayers went forward and staged an investigation. The stick was gone and the end of the cord was dangling in the dirt. Whereupon the future ticket puncher plucked the engineer from his platform and proceeded to debate the merits of a cord-signal system. Hamel was a big man, with the courage of his convictions, but he could not stand up before the fury of the inventor. When the final round ended he agreed through battered lips that there probably were points in favor of the wood-weighted cord. This elmination of an academic argument restored communication thereafter between caboose and engine. The stick continued to dance before the engineer's eyes until someone suggested the advantages of a gong. The Ayers system of signals attracted general attention and the bell cord was soon in use on all passenger trains.

Twenty years passed while the Erie was building to the lakes. Another twenty years went into history before the hard-pressed railroad found a really satisfactory outlet to the West. On January 1, 1869, the Erie leased the Atlantic & Great Western, which provided a right-of-way across Pennsylvania from New York to Ohio. Prior to this arrangement, train service was inaugurated between New York and Dayton. A connection was made at this point with the Cincinnati, Hamilton & Dayton and, beyond Cincinnati, with the Ohio & Mississippi, a broad-gauge line that ran to the banks of the Missouri. Thus it was that a road which began and ended nowhere in its original plan to connect the Great Lakes with the Atlantic Ocean became, nearly four decades from the date of its birth, a successful operator of through trains from New York to St. Louis.

Forty years of Erie growing pains brought radical changes in the operation of all American railroads. The snakeheads that imperiled earlier passengers gave way to rails of solid iron and steel. Travelers came down from the roofs of coaches and found comfort in cars that were built on springs. Sparks from the engine no longer destroyed the clothing of ticket purchasers and perilous cable-car trips up and down steep inclined planes became merely a fond recollection of days that had gone. Above everything else, however, the safety of the traveling public became a paramount consideration in the psychology of rail executives. The innumerable steps taken to stop unjustifiable homicide in the second half of the last century require a chapter all their own.

CHAPTER VII

THE BIRTH OF THE TRAIN DISPATCHER

ON SEPTEMBER 22, 1851, an impatient passenger on an Erie Railroad westbound passenger train became exceedingly irritated by an abnormal wait at Turner's Station, now Harriman, New York. This passenger, Charles Minot, was neither the first nor the last traveler to fume over an exasperating delay in train connections. He had, as it happened, one advantage over the average sufferer in such circumstances. He was superintendent of the road. Moreover, he had trained his brain to evolve ideas when transportation problems challenged his attention.

The Erie did not boast telegraphic facilities back in 1851. Samuel F. B. Morse had invented his new system of communication only six years before. There was, however, a commercial line strung along the Erie right-of-way. It connected Turner with various towns to the west through which the eastbound express was running badly behind schedule. It was this fast train that was holding up Minot and the other westbound passengers. Turner was the meeting point for the two trains, but nobody in the Erie offices knew why the express was late or just when it would show up around the bend.

Minot invaded the telegraph company's office and requested the operator to ask his colleague in Goshen, fourteen miles west, if the express had reached that point. The answer was no. And then the first telegraphic train order in history went into the record.

It read:

> "To operator at Goshen:
> "Hold eastbound train till further orders.
> "Charles Minot, Superintendent."

This was followed by order No. 2:

> "To Conductor Stewart:
> "Run to Goshen regardless of opposing train.
> "Charles Minot, Superintendent."

Stewart read the written instructions handed to him by the superintendent and took them up front to Engineer Isaac Lewis. That expert literally hit the ceiling of his cab. He knew his rules. They told him to wait one hour for the missing train, send a flagman on foot twenty minutes ahead and follow slowly behind that protecting red signal. Mr. Lewis did not propose to run against the eastbound express, superintendent or no superintendent, without living up to the letter of the right-of-way laws which he'd followed religiously since he'd first pulled a throttle. There was more profanity than religion in his language when he announced that he would stand pat on precedent.

Minot knew as much about locomotives as Lewis. When the engineer refused to obey written instructions, he ordered him out of the cab, took the throttle and ran the fourteen miles to Goshen at top speed. Throughout this fast run, Engineer Lewis sat in the last car of the train, ready to jump when he heard the crash. It is probable that he listened hopefully for a blast from the locomotive announcing the imminence of a disastrous wreck.

When Minot pulled into Goshen he telegraphed to Middletown, was told the express had not arrived, repeated his new train order strategy and continued his run to the west. As a result, he took his passengers into Port Jervis on time. He did more than that. He issued orders that Erie trains, thereafter, would be moved by telegraphic orders.

The engineers along the line fought hard against the innovation, but they had to yield or surrender their cabs. Their omnipotent reign was ended. A new tzar had assumed life-and-death authority over the man at the throttle. From that time on, everything stopped on Erie wires when telegraph operators heard the swiftly pounded dots and dashes that spelled an imperative emergency call from the insistent key in the dispatcher's office.

The steady invasion of unsettled territory in the years that preceded and followed the Civil War made this new official an autocrat as all-powerful as an old-time Mississippi river pilot. Four-rail right-of-ways were the exception to the rule in this earlier period. The long lines through the South and West were single-track roads over which two-way traffic moved at various speeds and with varying degrees of congestion. It was the train dispatcher's job to make up sheets that would get fast passenger trains out of his division on time, yet without imposing unreasonable penalties on the freights and locals thrown into sidings while privileged flyers made the main line hum.

This system worked reasonably well until human fallibility projected itself into the picture. The system was founded on the theory that a train dispatcher was immune to mistakes. Unfortunately they sometimes blundered. Tragedy stalked swiftly when the man at headquarters, probably near the end of an exhausting trick, committed the unpardonable crime of issuing an overlapping order. This meant failure to provide the same meeting point for fast trains running against one another with written main-line rights. On long stretches of single track through a wilderness there was no intermediate operator available to throw a red light. Sometimes, when there was such a way station, the man in charge of the key was either asleep or out of the office in the hour of need. When this was the case the dispatcher's heavy poundings merely sent a thrill of horror along the line as readers of the Morse code realized the meaning of that frantic call. When his efforts proved fruitless, the autocrat of the key could only issue an S.O.S. for doctors and nurses and order out a well-equipped wrecking train. His job was ended. Other men on the company's pay roll might make an occasional mistake and get by with a reprimand. When the train dispatcher went wrong he was through for life.

Double tracks, automatic block signals, mechanical couplers and the Westinghouse air brake robbed railroading of a certain picturesqueness that once appealed strongly to writers of romance. American inventive genius made deep inroads into activities of surgeons and the reasonable expectations entertained by the angel of death. The outstanding product of Yankee ingenuity was an exceedingly simple device that took jobs from an army of railway employees, but made life less hazardous for the traveling public.

In the first thirty-five years of American railroad history it was easy enough to develop high speed, but no simple task to check the rush of a heavy train. A locomotive thrown into reverse could not overcome in time the irresistible momentum of the cars behind. Emergency stops depended for their success on the alertness and muscular strength of the men who leaped for hand-controlled metal wheels when an engineer whistled for brakes. Repeated experiments with automatic gadgets were fruitless until a story from over the Atlantic printed in the first issue of a magazine to which he happened to subscribe caught one youngster's eye. This attentive reader was a twenty-two-year-old veteran of the American Civil War. He was out of a job and had plenty of time to think. The report that intrigued him told how the Mont Cenis tunnel was being bored through the Alps. The engineers in charge were working their drills with compressed air which they pumped through hook-ups of rubber hose.

"Why not throw brakes the same way?" the youthful ex-soldier asked himself.

That was the thought that made George Westinghouse an inventor. He conducted a series of satisfactory experiments and obtained a patent from Washington.

Then he took his idea to the Pennsylvania Railroad and received permission to test its value. His compressed air tank, with hose connections, was installed in a locomotive that pulled the Steubenville accommodation on the old Panhandle running west from Pittsburgh. Lady Luck, a true friend of the inventor, was riding the train that day. As the heavy local, lumbering at the top of its speed, approached a railway crossing a stupid farmer attempted to outrace the engine. His frightened horse reared and stalled the wagon between the rails. The engineer, reacting to habit, whistled loudly for brakes. Then he remembered the new device and jerked the air valve wide open. While some of the men on the cars behind were still running to obey the signal, a blast of compressed air rushed back through the entire length of the train, set the brakes on every car and brought the Steubenville accommodation to a grinding stop—just short of the horse, the wagon and one badly scared agriculturist. This was, of course, exceedingly valuable advertising for young Mr. Westinghouse.

There was one bad feature in the original air brake. It depended on the application of pressure, and the pressure was reduced by the length of a train. Four years later, in 1872, George Westinghouse patented an important improvement. He put his compressed air in tanks under every car and connected them by hose with the locomotive. The release of pressure, not the application of pressure, was his new method of setting the brakes. Each car had its own supply of power, and a failure of one tank would not interfere with the brakes on other cars. The improved invention was promptly adopted by the Pennsylvania. Other roads soon followed suit. Only passenger trains, originally, were given the benefit of the automatic safety device. Hand brakes continued to control freight carriers for another dozen years. In 1886 the Burlington inaugurated air-brake tests on long, heavy traffic trains. As a consequence, the Westinghouse invention soon became a standard equipment for every type of railway make-up. Even trains of 150 cars are now handled with ease by use of the idea that America adopted from the Alps.

The greatest menace to members of a train crew in the first fifty years of American railroads was the barbarous link-and-pin method of coupling cars. Missing fingers were identifying trademarks of switchmen and brakemen in that reckless half-century. The risk of ghastly accidents they faced every time they went into a yard was simply appalling, particularly on dark nights, or when rails and tracks were made slippery by winter's ice. Fielders, as the old-time couplers were known, worked between the wheels of a moving train. They had to drop a coupling pin into the hook, or snatch it out, just as the cars came together. They depended on the drawheads at the end of each car to provide enough space for escape when the connection was effected. When heavy freights were made up with cars from various railroads, the drawheads did not always meet end to end. If they failed to hold, the fielder was jackknifed. There was one compensation. His body, crushed flat, was usually buried by the company as a courtesy to his heirs.

Sometimes a pin refused to yield to the first tug when a cutter attempted to divorce his train from a switching engine. The man at the throttle, afraid that the switchman's hand would be caught behind the stubborn pin if he permitted the slack to run out, was compelled to keep the train in motion while the cutter raced over uneven crossties, treacherous guard-rails or unblocked frogs, tugging away at the obstinate iron bar. A misstep, a slip or a stumble meant a fresh case for the company surgeon or just another job for some enterprising undertaker who made special rates for railroad employees.

More than three thousand patents on automatic car couplers were issued in the seventies and eighties, but the old link-and-pin held its own until 1887, when all American railroads adopted a standard device. This invention by Major Henry Janney is known as the M.C.B., because it was sponsored by the Master Car Builders Association. It is merely a pair of steel jaws that project from each end of a car. These jaws automatically hook, like the fingers of a right and a left hand, when two cars come together. They are held in place by a pin that drops into a socket. To uncouple the cars, this pin is lifted by a lever that runs out to the edge of the car. Jackknifing and the lesser evil of lost fingers went out of the picture when the automatic coupler ended a dance with death between the heavy cars of a moving train.

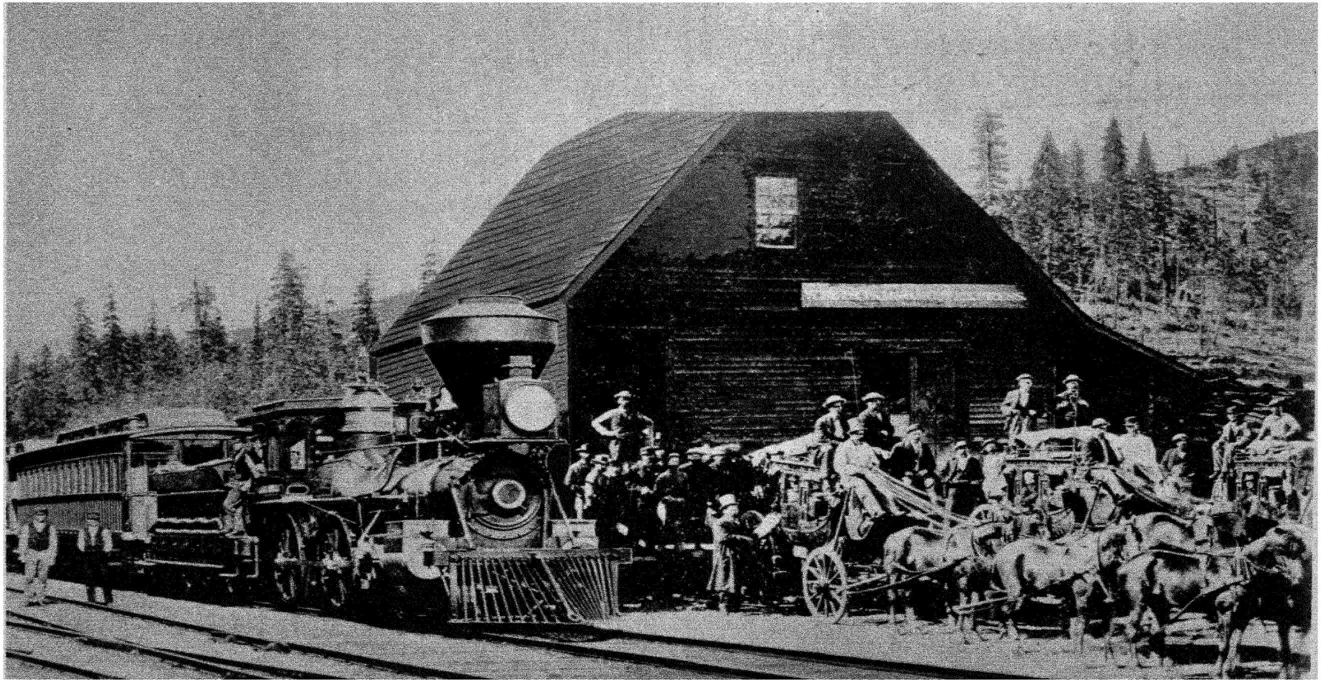
Practically all essential improvements in American roadbeds and equipment, with the exceptions of air conditioning and streamlined trains, were made between the birth of the first transcontinental railway and its drift into bankruptcy during the panic of '93. Their chronological sequence is interesting. The first Pullman sleeping car ran from Bloomington to Chicago in 1859. Postal clerks sorted mail on moving trains for the first time in 1862. In this year, also, Congress made 4 feet, 8½ inches the standard gauge for American railways. The first block system was installed in 1863. Two years later, American railroads began substituting steel for iron rails. In 1867 the New Haven installed an automatic electric block signal system. The Westinghouse air brake was patented in 1868. Circus trains, timetables and cattle trains were born in 1872. Pennsylvania locomotives began scooping up water from track tanks in 1875. Vestibule cars were invented by Pullman in 1880. Steam heat from locomotives supplanted stoves in 1881. The automatic car coupler was adopted by all American railroads in 1887. In this list of betterments the ones that aroused greatest popular interest were Pullman's contributions to the comfort of travelers.

The victims of optimism who sought restful relaxation at night on American railroads prior to 1865 were soon disillusioned. There were so-called sleeping cars of every conceivable type. The Cumberland Valley Railroad operated one between Harrisburg and Chambersburg as early as 1836. Seven years later, the enterprising Erie made a bid for fame with two elaborate but hopelessly impractical sleepers called the *Erie* and the *Ontario.* The latter was attached to the Thunder and Lightning Milk Train which ran between Piermont and Otisville. Various other roads experimented with sleeping cars in the twenty-nine-year period between the Cumberland Valley's pioneer effort and the first palace car, built in the final year of the Civil War. The best that may be said of this early period equipment is that some of the cars were not quite as bad as others.

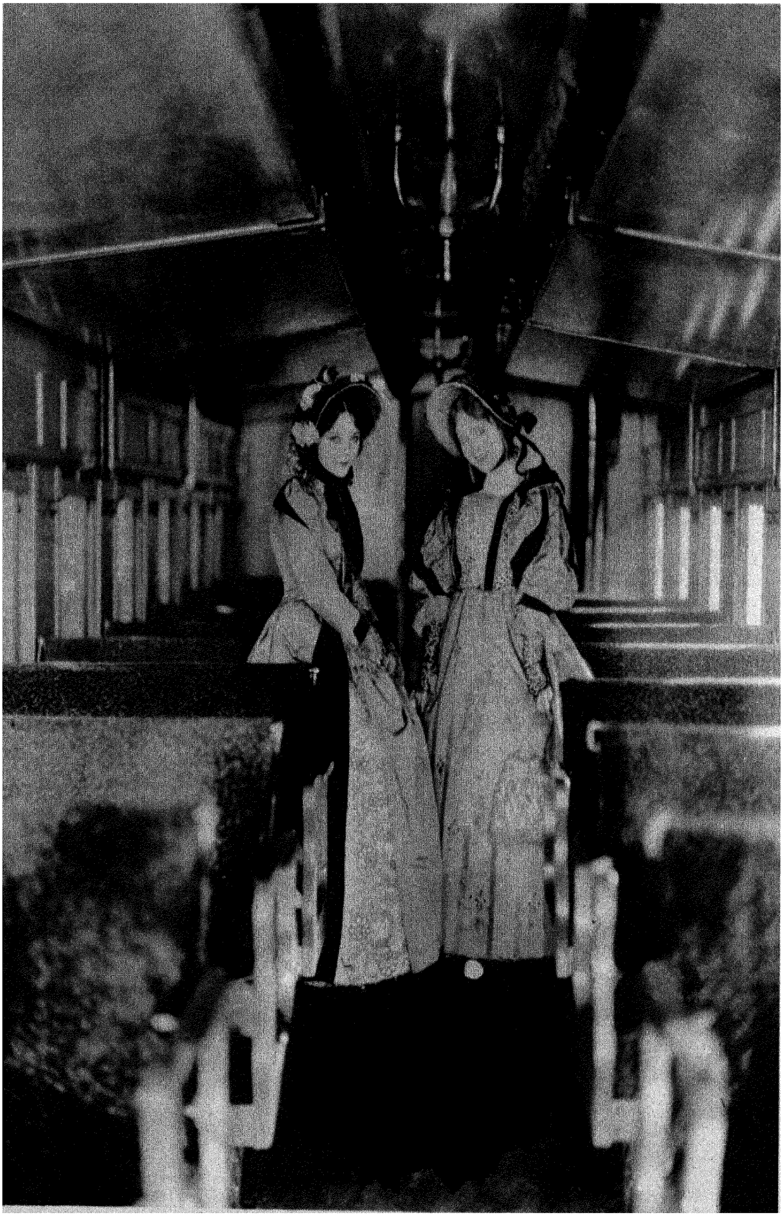
One night in 1858 young George M. Pullman, a New York cabinetmaker, tried his luck in an Erie sleeper between Buffalo and Westfield. He soon gave up in despair and went forward to the smoker. Sitting up was more comfortable than lying on the shelf he had rented. This gave him the balance of the night to do some concentrated thinking. His skill as a carpenter enabled him to understand why that sleeping car was hopeless. Before he reached Westfield an idea was born. He prepared his plans and took them to the Chicago & Alton Railroad. The management allotted him two day coaches for his experiments, which lasted the greater part of a year. The cost of installing his devices was approximately $2,000 a car. On September 1, 1859, the first of these primitive Pullmans was hooked to the rear of an Alton train for the run from Bloomington to Chicago. The berths were made up by brakemen, but passengers were impressed when J. L. Barnes, the first Pullman car conductor in history, reported for duty at the Bloomington depot. It is true that he was clad in citizen's clothes, but he wore an impressive badge. Also, which was even more fortunate, he afterward wrote the following detailed description of that first Pullman run:

"All the passengers were from Bloomington and there were no women on the car that night. The people of Bloomington, little reckoning that history was being made in their midst, did not come down to the station to see the Pullman car's first trip. There was no crowd, and the car, lighted by candles, moved away in solitary grandeur, if such it might be called.... I remember... I had to compel the passengers to take their boots off before they got into the berths. They wanted to keep them on—seemed afraid to take them off. There were four upper and four lower berths. The backs of the seats were hinged, and to make up the lower berth, the brakeman merely dropped the back of the seat until it was level with the seat itself. Upon this he placed a mattress and blanket. There were no sheets. The upper berth was suspended from the ceiling of the car by ropes and pulleys attached to each of the four corners of the berth. The upper berths were constructed with iron rods running from the floor of the car to the roof, and during the day the berth was pulled up until it hugged the ceiling, there being a catch which held it up. At night it was suspended about half way between the ceiling of the car and the floor. We used curtains in front and between all berths. In the daytime one of the sections was used to store all the mattresses in. The car had a very low deck and quite short. . . . There was a very small toilet room in each end, only large enough for one person at a time. The wash-basin was made of tin. The water for the wash-basin came from the drinking-can, which had a faucet so that people could get a drink."

Business was bad the first month. The traveling public, accustomed to sitting up all night, did not take kindly to this radical idea. After a few trips Barnes lost his job. Patronage did not justify his small salary. The sleeping



The arrival of Central Pacific rails at Colfax, California, in 1865 doomed the old pioneer stage coach which played so picturesque a role in the early history of the West.



The first Pullman sleeping car, built for the Chicago & Alton, with two modern misses displaying the styles our grandmothers favored in 1859, the year in which "Number Nine" made her maiden run.

car was placed in charge of the train conductor, so at least some of the passengers contrived to sleep with their shoes on.

In 1865 Pullman built the first of his palace cars at a cost of $20,000. He called it the *Pioneer*, but the public called it Pullman's Folly. These new sleepers were put into service on the Alton. The Michigan Central announced sleeping-car service at about the same time, but began operation with one of the original converted day cars. Michigan Central officials thought passengers would prefer this crude night coach at low rates to a palace car, with all its luxury and glitter, at a substantially higher tariff. Pullman persuaded the management to try the experiment of running both cars on the same train. Travelers promptly sided with the inventor. The only passengers who accepted berths at the cheaper rate were those who could not get reservations for the two-dollar sleeper.

In 1867 the Pullman Palace Car Company was incorporated to operate as well as manufacture sleeping cars. In its opening year of activities it tried an experiment that led to the evolution of dining cars from the original sleeping cars. The first of these novelties, called a hotel car, was tried out on the Great Western Railroad, now the Grand Trunk of Canada. A Pullman sleeping car was equipped with a kitchen at one end and meals were served on small tables set up in the sections. These meals were not snacks, but decidedly substantial affairs. Moreover, the prices charged were amazingly low.

The menus advertised raw oysters at fifty cents, but added a dime if they were fried or baked. Various cold meats could be had for forty cents. Lobster and chicken salads, also ham and potatoes, cost an even half-dollar. Beefsteaks or mutton chops, with potatoes on the side, were priced at sixty cents. Eggs in any style, except rum omelettes, were forty cents. The alcoholic treatment added a mere ten cents to the cost of the omelette.

On November 1, 1875, the Erie Railroad inaugurated a through train service over its own and connecting lines between New York and Chicago. These trains carried sleeping and drawing-room cars and hotel cars that served meals which cannot be equaled today. Pheasant, woodcock, quail, snipe, golden plover, blue-winged teal, prairie chicken and venison provided variety for passengers who tired of lobster, chicken and sirloin steaks.

The Chicago & Alton operated as early as 1868 a Pullman-constructed all-dining car called the *Delmonico*. The introduction of this novelty, which compelled passengers to move about in the trains, resulted in an elimination of dangerous open platforms between cars. Pullman promptly announced the invention of the vestibule, which was placed in service in 1880. It was not until 1893, however, that the modern vestibule with trap doors over the steps was perfected.

Development of luxurious features for fast passenger service led inevitably to parlor cars, buffet cars, observation cars, lounge cars, club cars, etc., and to famous limited trains. This patrician list soon included the Southern Pacific's *Lark*, the Pennsylvania's *Broadway Limited*, the New York Central's *Twentieth Century Limited*, the Baltimore & Ohio's *Capitol Limited*, the Union Pacific's

Overland Limited, the Illinois Central's *Panama Limited,* the Northern Pacific's *North Coast Limited,* the Atlantic Coast Line's *Florida Special,* the Seaboard's *Orange Blossom Special,* the Southern's *Crescent Limited,* the Great Northern's *Oriental Limited,* the Rock Island's *Golden Gate Limited,* the Boston & Maine's *Flying Yankee,* the New Haven's *Knickerbocker Limited,* the Santa Fe's *Chief,* the L & N's *Pan-American,* the Alton's *Hummer,* the Burlington's *Night Hawk,* the Missouri Pacific's *Sunshine Special,* the Milwaukee's *Olympian* and the 'Frisco's *Sunnyland.* These were the predecessors of the streamline flyers that are now operated by a majority of America's important railway systems.

The substitution of electricity for gas cannot be credited to an American railroad. The first electrically lighted sleeper ran over English rails. It was, however, an American-built Pullman, powered by a French storage battery placed under the car. When this experiment proved a success, an entire train run by the Atlantic Coast Line for the Florida season was lighted with electricity. Heating trains with stoves was discontinued considerably more than a half-century ago, but the present vapor system, more satisfactory than the steam heat piped back from the engine, was not perfected until 1903. Air conditioning was attempted in the early 1850's, but proved unsatisfactory. The present control of temperatures was adopted during a recent depression year. One small contribution to the happiness of travelers must not be forgotten. The Milwaukee, first major railroad to operate its own sleeping cars, celebrated the initial summer of its independence by throwing out of service the conventional heavy blankets to which passengers were accustomed and substituted cool white counterpanes. That was one idea that George Pullman overlooked.

CHAPTER VIII

THE SCARLET WOMAN OF WALL STREET

ON A SUMMER MORNING in 1854 Daniel Drew, the most dreaded Wall Street operator of his day, was told that "some gentlemen from the Erie Railroad" desired an interview. Uncle Dan'l was expecting this call. He had set a trap for the prosperous young road recently completed between the Hudson River and Lake Erie. He owned the boat line running between New York and Albany, where the New York Central had its eastern terminals, and a controlling interest in the lake steamers that gave the Erie its outlet to the West. Just to be sure, he had picked up a majority of the stock in the Buffalo & State Line, a tiny little railroad that provided connections for both the Central and the Erie. With this strangle hold on both ends of the Erie, he permitted the news to leak out that he proposed to give the New York Central preferential rates over all lines of communication he owned or controlled.

Drew readjusted his quid and sent word for his callers to come in. As he waited he hummed a fragment of his favorite hymn about the "sure retreat from storms and blows 'to be found' beneath the Mercy Seat." Dressed as usual in a shabby, ready-made suit and old top-boots of the type he had worn as a cattle dealer, he was not an impressive figure. The fringe of white beard under his chin showed streaks of tobacco juice, and the face above registered pious humility. He seemed almost to cringe before his callers.

"What kin I do for you?" he asked.

The visitors wasted no time on preliminaries.

"Why," they demanded, "are you giving the New York Central crowd better rates than the Erie?"

"I didn't suppose you'd care about anything I did," said Uncle Dan'l. "Fact is, I'm kinder surprised that you boys even knew I was livin'. Set down and let's talk it over."

Before that session ended a deal was closed. Drew would be elected a director of the Erie and appointed treasurer of the road. He rubbed his hands in glee when his visitors departed. He had been itching to get his fingers into the Erie pie. Now he had his chance.

The new director wasted no time. Heretofore he had been the outstanding bear in the Street. Naturally pessimistic, his talents turned to the art of short selling. He was happiest and at his best when panics raged. The misfortunes of his fellow men had always meant swift increases in his own big bank accounts. Now, however, he began to make money both ways. His inside knowledge enabled him to buy Erie common before good news got out, or sell it short when evil days loomed. His market activities were not limited by legitimate advance information. When times were dull, he inspired favorable or unfavorable rumors about the road to fit his long or short stock positions. The victims of his manipulations were not always gullible outsiders. Uncle Dan'l laid snares for old associates foolish enough to trust his tips. He found to his entire satisfaction that friends were easier dupes than strangers. The next ten years brought fortune and ill fame to the Erie Railroad's speculative director.

And then Uncle Dan'l made his first bad slip. He aimed a bit of crafty money-making strategy at Commodore Cornelius Vanderbilt, his old associate in early steamboat days on the Hudson.

Vanderbilt and Drew joined forces in 1864 to buy control of the Harlem Railroad, a New York horse-powered line that ran from Twenty-sixth to Forty-third Street. They began buying this common stock around $8 a share. When their campaign ended Uncle Dan'l took the picture to Boss Tweed and showed that gentleman how an honest penny could be plucked from the Vanderbilt bank roll. The charter originally granted to the little street railroad permitted it to extend its tracks down Broadway whenever the city government gave consent. Drew went partners with Tweed on his Harlem stock holdings, and Tweed went before the New York Common Council. When the newspapers announced next day the good news that a downtown extension had been approved there was a sharp run-up in Harlem quotations. Drew and Tweed registered their profit and went short a block of the stock. Then, of course, the Common Council rescinded its consent. The conspirators, expecting a drastic decline in Harlem valuations, stood ready to capture an enormous profit.

Harlem common did not drop. A hurried check-up disclosed the fact that Vanderbilt had taken every share sold short by Uncle Dan'l and Boss Tweed. What was worse, he had begun to lay rails down Broadway and refused to stop. Drew applied to the court of common pleas and obtained an injunction against the Harlem extension. And still the stock stayed up. A few days later, the Commodore had the injunction dissolved and went on laying rails.

This gave Uncle Dan'l a new idea. He inspired a report from Albany that the New York state legislature would give the street railroad a downtown franchise and make it permanently independent of the City Council. When this story was printed Harlem common jumped to $150 a share and the Drew-Tweed partnership went short another big block of stock. Their next stop was to defeat the measure pending before the legislature and, as they expected, Harlem common dropped to a bid of $50 a share.

The happy pair counted up their transactions and found they had sold short a total of 27,000 shares at prices ranging from 75 to 150. By covering at 50, they would have a profit of approximately a million and a third dollars. So they attempted to buy the stock they had agreed to deliver.

This effort developed a startling situation. There was no Harlem common for sale. Vanderbilt's brokers bustled about the floor of the exchange bidding 150 for the much discussed equity. When the market closed a Vanderbilt agent stood on the steps outside his office and offered $150 in cash for every share of Harlem available. When that activity proved fruitless, he pleaded for stock at any price. Much clamor brought out a few odd lots at $285 a share. It was a perfect corner. The Commodore owned every Harlem certificate on the market.

Uncle Dan'l swiftly realized what he was up against. He was ready to wallow in a diet of crow. He appeared, hat in hand, before the irate Commodore.

"C'neel," he said, "I've come to see you about Harlem. I ain't got that stock."

"That's all right," said Vanderbilt. "Go out and buy it."

"There ain't nary a sheer to be bought. You've got me, C'neel. How much be you goin' to let me off fer?"

"How much are you worth? We'll settle on that."

The unhappy Drew groveled before his successful opponent and shed tears of honest anguish. He recalled the days of their youth when they worked together on the river. He pleaded for mercy. The Commodore made him endure a night of torture and then permitted him to settle at a figure under a million dollars. That good-natured leniency was a blunder the winner lived to regret. The Harlem corner, however, was the first step in the creation of the Vanderbilt Lines, a mighty railroad empire that later revolved around the New York Central System.

Drew operated as a lone wolf throughout the first dozen years of his Erie manipulations. His energies were concentrated on the task of outsmarting other gamblers. The baleful effects of his activities on the welfare of the railroad did not interest him, nor was he disturbed by blistering criticisms in the press. Roadbed and equipment ran down under his domination of the Erie's financial policy. The company was in excellent condition and paying liberal dividends when Uncle Dan'l wormed his way into the picture. It rode through the panic of 1857 without an effort. The morale of the employees was superb, and the inhabitants of the territory it served, exceedingly proud of "the longest railroad in the world," were glad to shower it with patronage. Drew's miserly slashing of appropriations for the betterment of the right-of-way soon led to disastrous wrecks which gave the road a sinister reputation. When operating revenues declined, he loaned the corporation money and gambled with the stock of the company pledged to secure these advances. Eventually he found sympathetic partners for his exploitation of the Erie.

The first of his more notorious allies was James Fisk, Jr., known to fame as Jubilee Jim. Fisk began life as a peddler and circus employee. He accumulated a small fortune in the Civil War on questionable contracts for Union Army supplies and by smuggling cotton across the line. Most of this modest wealth was dropped in the New York stock market before he encountered the speculative director of the Erie. Uncle Dan'l was intrigued by Fisk's flamboyant personality and spectacular recklessness. He was shocked by his flair for "carnal women," but was allured by Jim's extraordinarily shrewd trading ability. He offered to set the younger man up as the head of a Wall Street firm and throw him his stock market business. Thus was born the house of Fisk & Belden, known in the financial community as Drew's brokers. It was this firm that handled some of the most spectacular deals in Erie stock.

The third member of a triumvirate unequaled in the annals of Wall Street was Jay Gould, born on a farm in the Catskills, who saved his pennies and after the panic of 1857 built the foundation of a fortune when he bought across a bargain counter the bonds of a tiny railroad called the Rutland & Washington. He made himself the president, treasurer and superintendent of this little outfit, worked out a consolidation with the Rensselaer & Saratoga Railroad, withdrew his capital and in 1859 transferred his activities to a larger stage. He was a member of the firm of Smith, Gould & Martin when Fisk & Belden opened for business. Gould promptly cultivated friendly relations with the head of the younger house.

Gould presented a perfect contrast to Fisk. He was cautious, cold, abstemious and disconcertingly quiet. His early experiences as a poor boy on a run-down farm taught him a lesson he never forgot. He was not miserly, like Drew, but he had a horror of poverty that may explain the ruthlessness he displayed as he built an enormous fortune. He placed a proper value on an association with the colorful Fisk and he effected through him a close contact with Drew. Uncle Dan'l was suspicious of Gould. He never knew what was going on behind his new associate's expressionless eyes and the heavy black beard that masked his mouth. He could understand Jubilee Jim's weakness for "fancy women," but Jay's icy attitude was beyond his analysis. Nevertheless, the evil genius of the Erie realized the value of a working alliance with these two younger men. His complicated stock manipulations required expert assistance. He took Fisk and Gould into an off-the-record partnership and subsequently made them fellow directors of the railroad that had become his chief gambling asset.

Uncle Dan'l was still mourning the million-dollar ransom he had paid to C'neel on the Harlem Railway deal. He wanted revenge, on general principles, but he had a specific ambition to recapture the original hard-earned dollars he had handed over to the Commodore. The fact that he had more than made up this loss by various short sales of Erie did not dull the edge of his anguish when reports of Vanderbilt accomplishments in the railway world became the talk of the Street. The Commodore had added the New York & Hudson River Railroad to his Harlem property, thus setting up a through line from downtown New York to Albany. In 1866 he bought the New York Central Railroad, connecting Albany with the lakes. His acquisition of the Lake Shore extended his main line to Toledo. He was negotiating with the Michigan Southern, which would take him into Chicago. At about the time of his Central purchase he resigned a directorship in the Erie which he had held for seven years.

This step did not mean a withdrawal from the Erie picture. Vanderbilt was very much interested in the road that competed with his Great Lakes connections. He owned big blocks of Erie stock and he was disposed to increase his interest in the road. Moreover, he wanted

Erie quotations to hold their own on the New York Stock Exchange and was perfectly willing to support the market. Drew knew this. He had a conference with Fisk and Gould, after which this Big Three began to sell Erie short.

The stock was fluctuating around 95 when the selling campaign began. Apparently it was worth that price. Vanderbilt told his brokers to hold the market, and Street experts shook their heads over the folly of Uncle Dan'l and his allies. The crafty Mr. Drew was not, however, projecting himself on the slender end of a limb. He had accumulated as securities for loans to the Erie a huge bundle of the road's bonds that happened to be convertible into the common stock. These bonds did not belong to him. They were merely pledged. It probably did not occur to Vanderbilt that the shifty old Erie bear would dare to utilize this collateral. He realized his mistake when a big block of newly printed Erie stock was thrown at the market. The price broke to $50 a share and the conspirators beat a hasty retreat with a profit that ran into the millions. Since most of the loot came out of Vanderbilt's pocket, Uncle Dan'l cackled with glee over the success of his coup. He had won back from C'neel that Harlem million, with more than compound interest.

The roars of rage from the Commodore literally shook the Street. He announced that he would get his money back and in addition kick Uncle Dan'l Drew off the Erie board. The Vanderbilt brokers were told to go out into the market and buy control of the road. Which, of course, they did. The election of directors was scheduled for October 8, 1867, and Commodore Vanderbilt, after preparing his slate, began to practice drop kicks.

Uncle Dan'l didn't like the outlook. He had no thought of giving up an inside position that had made his Erie gambling a sure thing. He went to the Commodore with a new idea. He had, he said, seen a great, blinding light. He repented the past, and his conduct in the future would be beyond reproach. He had been a religious man since early boyhood. He had built churches and provided the founding fund for the Drew Theological Seminary. He was a feeble old man nearing the grave. He wanted to devote his few remaining years to good works. If the Commodore would permit him to retain a directorship which was the pride of his life, he would from now on be an indefatigable Vanderbilt representative on the Erie board. His retention as a director would be a guarantee that the Erie would not compete with the New York Central. And he would always vote every share of his stock exactly as the Commodore wanted those shares voted.

Incredible as it seems, Vanderbilt listened with mixed emotions to the sad tale and developed a feeling of sympathy for the aged sinner. He had pledged his word, however, that the name of Drew would be wiped off the records on October 8. There was, of course, as Uncle Dan'l pointed out, a way to get around this hurdle. He could be dropped from the board at the annual election and a dummy elected in his place. Then, next day, the dummy might resign and Drew be elected by the other directors to fill the vacancy. After much discussion, and more promises, the Commodore agreed to this program, and it was carried out a few weeks later. In the meantime, he permitted control of the Erie to drift to the other stockholders.

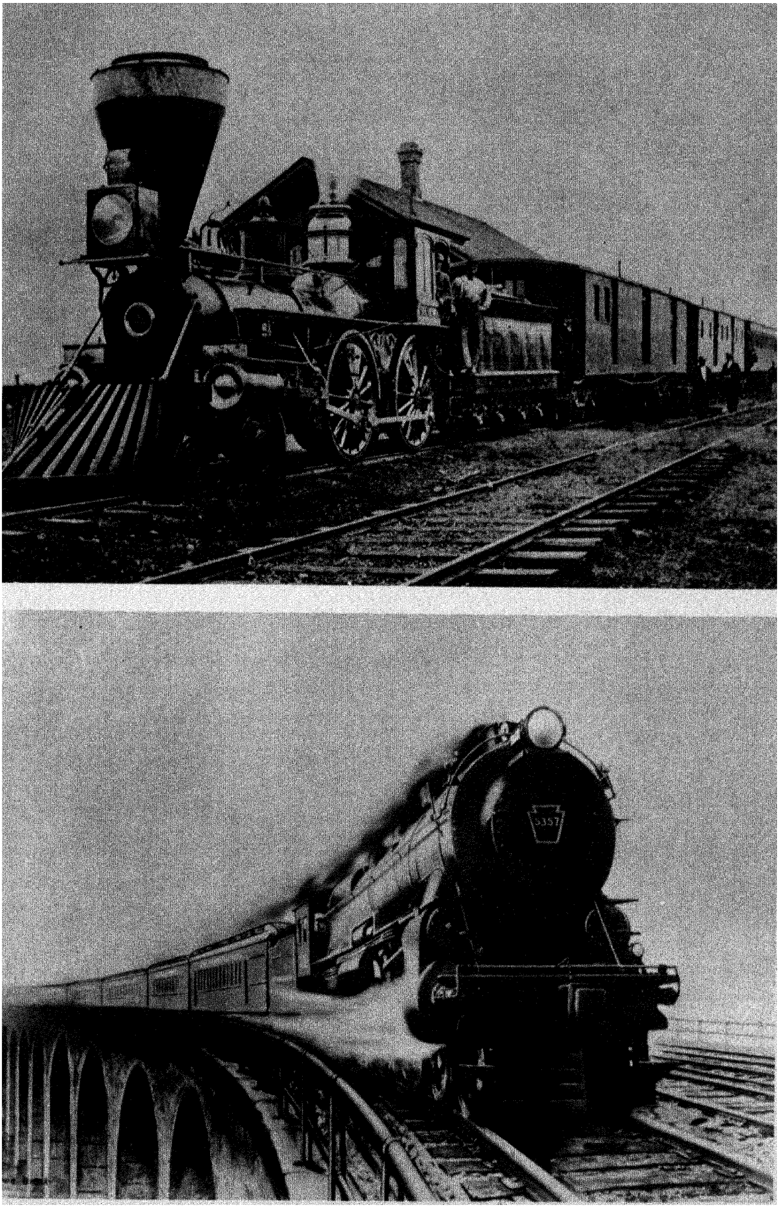
The first test of Uncle Dan'l Drew's loyalty came when Vanderbilt called a meeting of Erie, New York Central and Pennsylvania Central representatives to work out noncompetitive traffic rates. His plan was opposed by most of the Erie directors and Uncle Dan'l voted with the majority. Again the Commodore exploded with rage, and once more he ordered his brokers to buy control of the road. But, remembering his previous experience, he sent his lawyers to Justice George G. Barnard, of the Supreme Court of New York, to obtain a series of injunctions that would tie Mr. Drew into a combination of double knots. Justice Barnard obligingly issued a series of orders. One directed Drew to return to the Erie treasury all stock and convertible bonds held by him as collateral. A second forbade the Erie to pay back any money it had borrowed from Drew. A third restrained the Erie officials from issuing additional stock not specifically approved by the court. A final order suspended Drew as a director of the road.

In the face of these precautions, the Street was amazed when Uncle Dan'l nonchalantly put out a line of Erie short sales. By the end of February, 1868, his official bets that Erie would do a downward spiral were held by all the Vanderbilt brokers. When the crafty Mr. Drew felt that the stage was set, he threw 50,000 shares at the market. Much to his amazement, that block was absorbed.

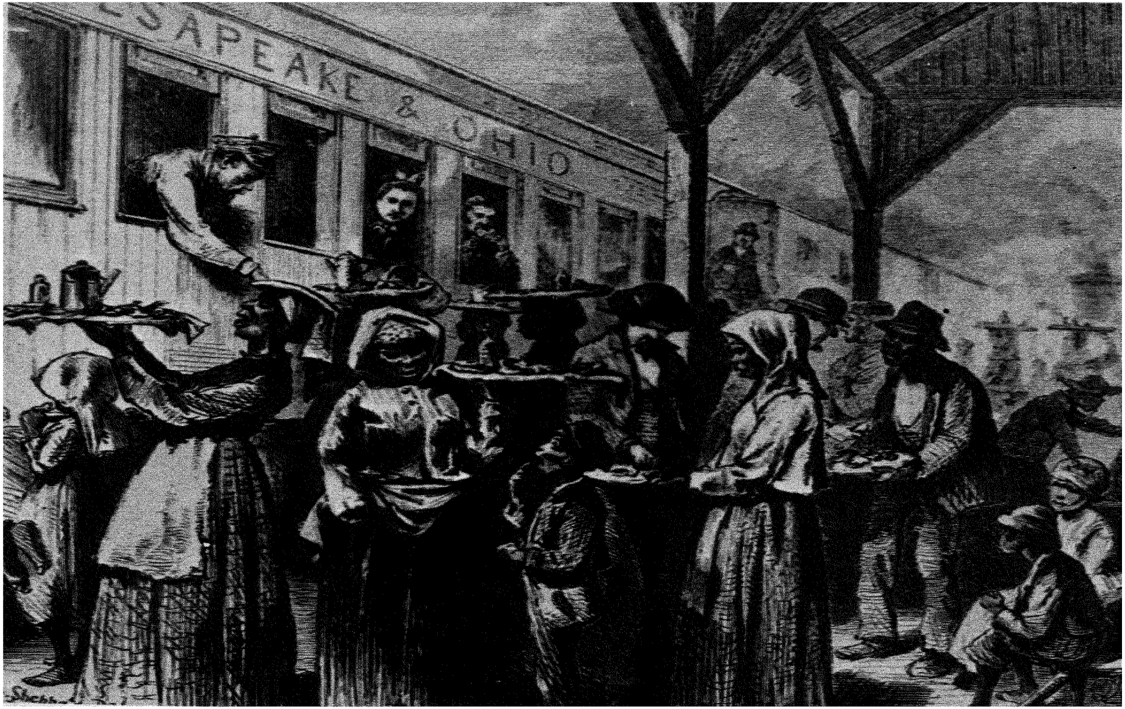
The Commodore stood pat and told his representatives to "take every share offered by that so-and-so Drew." On March 9, Erie ran up to 78. On March 10, it rose to 79, and Uncle Dan'l began to get nervous. Next day the Vanderbilt bidding took Erie to 80 at the opening, and 83 at noon. And then Jim Fisk threw a new block of 50,000 shares at the market. Simultaneously, it was whispered around the Street that Drew and Fisk and Gould had obtained a court order of their own and had put their hands on a big block of convertible bonds. They had a printing press going full speed, said the inside story, and could run off crisp new certificates as fast as Vanderbilt's brokers bought them.

This was too much for the Street. Erie broke wide open. In a very few minutes it was down to $71 a share, with Vanderbilt the only buyer.

The three gleeful conspirators collected their winnings—roughly $5,000,000—and retired in triumph to the Erie offices in West Street. Uncle Dan'l cackled and even Jay Gould smiled when Jim Fisk hilariously observed that they had given the Commodore a beautiful demonstration of the power of the press. Their jubilation ended when word came that Justice Barnard had issued warrants for their arrest for contempt of court. Hastily bundling their greenbacks, their stock books and essential railroad records into a cab, they drove full speed to the river and caught a ferryboat for Jersey City. Once over the line, they defied all orders issued by the New York courts. They set up new railroad offices as well as living quarters in the Taylor Hotel. They organized a small



SMOKE-STACKS SHRINK AS SPEED SPURTS. (Above) The first passenger train on the old San Jose Railroad creeps out of San Francisco in 1866. (Below) The Pennsylvania's Broadway Limited sets a new record between New York and Chicago.


SAPEAKE & OHIO

The advent of the dining car threw a monkey-wrench into the fried chicken and hot coffee industry of "Ole Virginny."

army of detectives and Erie employees to guard against any kidnaping attempts. Jim Fisk called in the reporters and gave out a humorous statement in which he referred to his associates and himself as the "Erie Exiles." He contended that Commodore Vanderbilt was a hardened old pirate, attempting to get a strangle hold on every railroad connecting New York with the West. He pictured Drew, Gould and himself as heroes, patrolling the quarterdeck, prepared to beat off all buccaneer attempts to board the good ship *Erie*. There were obvious weak spots in his statement, but, all in all, he got a very good press. The newspapermen saw real humor in the situation.

The Erie Exiles made themselves as comfortable as possible in their adopted home. Uncle Dan'l prayed; Jubilee Jim sent for his favorite mistress, Josie Mansfield; and Gould proceeded to Albany where, eventually, he corrupted the legislature and obtained a whitewash for the activities leading up to the flight across the Hudson. After a few weeks, of course, Drew grew tired of his banishment and opened secret negotiations with Vanderbilt. He was prepared to sell out Gould and Fisk if he could make a satisfactory deal for himself. Vanderbilt was weary of tilting against printing presses and convertible bonds. He was interested, chiefly, in eliminating Drew from a position of authority in a competing railroad. Therefore, when Gould and Fisk discovered the plot and injected themselves into the picture, a settlement was worked out. Drew was permitted to retain his stock market winnings; the Erie Railroad took over the hundred-odd thousand shares unloaded on Vanderbilt, thus wiping out his loss; the Commodore abandoned his plan to control a rival system; Gould and Fisk assumed command of the manhandled railroad; and Uncle Dan'l Drew was divorced forever from Erie management.

Jay Gould, as president, and Jim Fisk, as vice-president, operated the Erie for forty-eight long months until its reorganization in 1872. Before the end of that year, on the very eve of a disastrous panic, Gould turned his attention to Western railroads and Jim Fisk was shot and killed by W. E. D. Stokes, his rival for the affections of Josie Mansfield. Commodore Vanderbilt swung north and concentrated his activities on the New York Central and allied lines, which he soon built into the most efficient railway system in the world. Uncle Dan'l Drew lived until 1879, and died a bankrupt. Fisk, of course, had left very little money to his long-suffering wife. Jay Gould, the man who dreaded poverty, was the only member of the wrecking crew who retained the winnings he had piled up in that amazing era between the panics of '57 and '73 when the unfortunate Erie became known in respectable financial circles as "the scarlet woman of Wall Street."

CHAPTER IX

Blessed Events That Followed the Wedding of Rivers

Alexander M. Jenkins, of Jackson County, Speaker of the Illinois House of Representatives, surrendered his gavel to a temporary presiding officer and descended to the floor. He wished to discuss an intelligent development of the great natural resources of the state. Any real progress, he contended, would hinge on prompt creation of suitable transportation facilities. Plank roads for wagons were good enough, as far as they went, but Illinois really needed a railroad. An adjournment of the 1832 Legislature was near at hand. Before retiring to private activities, why not follow the bold example set by South Carolina and Maryland? He was ready to cast his vote for the construction of a Central Railroad from Cairo, at the confluence of the Ohio and Mississippi rivers, to the western terminus of the proposed Illinois and Michigan Canal.

What Speaker Jenkins advocated was a 300-mile roadbed through the wilderness. It was so daring an idea that most of his auditors sat in stunned silence. One immature lawmaker, however, rose to his feet.

"Mr. Speaker," he shouted.

"The Gentleman from Sangamon County," was the chair's recognition.

"I agree with the Speaker," said the young representative. "I second his railroad proposal."

That brief speech by twenty-two-year-old Abraham Lincoln precipitated the first of a series of violent discussions that rocked Illinois legislatures for more than a quarter of a century. Four years later, transportation became the paramount political issue in every Illinois county election. Eventually, of course, this unceasing agitation produced results. A bill creating the Illinois Central Railroad Company was passed on January 18, 1836.

Just one year later the Illinois legislature threw off all restraint and voted in favor of every railroad undertaking any member happened to suggest. These various bills were grouped into a blanket measure which became famous as the Internal Improvement Act of 1837. It authorized the construction of 1,341 miles of railroad to cover all parts of the state except the northeast corner, where a costly canal was being dug at the expense of the taxpayers. A program of this magnitude would not perturb a modern appropriation committee. There are today nearly 800,000 miles of railroad under operation throughout the world, of which more than 450,000 are within the borders of the United States and Canada.

The figures were a bit more impressive a century ago. In 1830, two years before Abraham Lincoln approved the suggestion advanced by Speaker Jenkins, there were exactly 23 miles of railroad in the Western Hemisphere. In 1840, four years after the Illinois legislature nonchalantly decided to build 1,341 miles, there existed in all the United States, Canada, Mexico, Central and South America exactly 2,818 miles, or only 136 miles more than double the trackage proposed by the Illinois lawmakers.

There was, of course, some justification for the reckless railroad construction demanded by the Middle West in the third decade of the nineteenth century. The lack of transportation made life for the early settlers an unending battle against discouraging odds. The wheat they grew had to be hauled a hundred miles or more to the mills that ground it into flour. Equally long journeys were required to obtain salt for their daily bread. When plows grew dull, they had to be transported thirty, forty or fifty miles to a grindstone. The pioneers raised their own wool and flax, which their women spun and wove into clothing. They cured the hides from which they made their own shoes. It is not surprising that they looked to the advent of rails as eagerly as the first housekeepers of New Mexico awaited the arrival of covered wagons over the old Santa Fe Trail.

The Illinois farmers of 1836 argued that prosperity and the comforts of civilization merely awaited the roar of the locomotive. This was more a prediction than a hope. When railroads were first discussed by Abraham Lincoln, Chicago was merely "a collection of huts in a swamp." Three years later it was a flourishing village. In 1850, when the Illinois Central was a certainty, this village had become a city of 29,000 inhabitants. More than 100,000 Chicagoans patronized eleven competing railroads in 1860. In the thirty-year period from 1850 to

1880, the population jumped from less than thirty thousand to more than half a million. The present estimate is approximately three and a half millions, or almost a third of the total population of our states and territories back in 1830. And today, it might be added, Chicago is tapped by thirty-odd railroads, representing systems that operate more than two-fifths of the nation's total mileage.

The Act of 1836, authorizing construction of a railroad "from the mouth of the Ohio to a point on the Illinois River," did not provide funds for this ambitious undertaking. Twelve months later the legislators appropriated three and a half millions to inaugurate transportation-building activities. The Illinois Central was allotted a portion of this sum for a line from Galena, through Springfield, to Cairo. The appropriation was also supposed to cover canal improvement and first costs of three railroads that would have Alton as a terminus. Shawneetown, Mt. Carmel and Terre Haute were the objectives set for this trio. It is significant that two of the first four roads authorized by the Illinois legislature were planned as weddings of rivers on which the first settlers of the state had depended for transportation. One line coupled the Ohio and the Mississippi. The other connected the confluence of these two rivers with the Illinois.

This ambitious program ran head on into the panic of 1837. Construction languished for fourteen years while legislators awaited a surplus of state funds. In 1851 Illinois decided to sidestep the perils of government ownership. A new Illinois Central Railroad charter was given to private promoters, and a land grant of two and a half million acres was voted in favor of the project. This legislative generosity subsequently proved an amazingly profitable investment. There was, however, a dangerous joker in the liberal acreage award. The number two charter stipulated that the main line of the Illinois Central must be completed before the end of 1854. With this time limit confronting them, the builders developed a burst of speed. They appointed Colonel Roswell B. Mason, of Connecticut, chief engineer of the line, and told him to rush construction. With the help of a staff of youthful assistants, Mason completed his surveys in record time. One of these alert young helpers was Grenville M. Dodge, the man who eventually built the Union Pacific.

The Illinois Central moved slowly at the beginning of its history. Colonel Mason was compelled to import workmen from Eastern cities, and his replacement statistics were appalling. The new construction camps became plague spots and breeders of epidemics. Disease, death and desertion were the three horsemen who rode the right-of-way. Chicago haggled over trackage rights into the city. Two other roads, the Michigan Central and the Southern Michigan, were making a simultaneous fight for this permit. Mason finally worked out a deal with one of his competitors. As a result of this strategy, Chicago reluctantly authorized the Illinois Central to construct a line into the city along the shore of Lake Michigan, with a proviso that the Michigan Central had the right to use these tracks from Calumet to Chicago.

This plan did not prove altogether pleasing to the builders of the Southern Michigan. They looked for opportunities to harass their rival. A beautiful opening developed when the line from the south met the northern road's rails at a point called Grand Crossing. The Southern Michigan, by right of prior construction, bluntly prohibited any grade crossing and demanded an overhead bridge for the Illinois Central's passage. Colonel Mason met this problem by throwing his track across in the middle of the night, after capturing the Southern Michigan guard on duty at the point of dispute. On May 21, 1852, his first train rolled into Chicago over the new lake-front track. Then, to show that they really meant business, the Illinois Central promoters startled all rival roads by ordering 50 new locomotives and 72,000 tons of iron rail. These were impressive figures nearly ninety years ago. The orders were placed, of course, more than two years before the directors of the road knew whether or not they would win the vitally important land grant. That question became increasingly important in the final weeks of a four years' battle against odds. Unforeseen delays in the last effort of the contest convinced a majority of the board that the grant was doomed. Mason tightened his belt and increased his reckless speed. He drove his last spike on December 28, 1854. The two and a half million acres were saved by a photographic finish.

The first locomotive in the history of the Mississippi Valley was imported by the unluckiest enterprise chartered by the Illinois legislature in the appropriation debauch of 1837. The new company called itself the Northern Cross Railroad. It was created to connect Quincy, Jacksonville, Springfield and Decatur, and continue on to the Indiana state line. The first rail was laid on May 8, 1838, and the optimistic management ordered a locomotive. The fate of that engine is one of the minor mysteries of railroad history. It was reported "lost in transit." Six months later a river packet unloaded a new Rogers locomotive at Meredosia. It was placed on the Northern Cross rails and made a 12-mile run to Morgan City in approximately two hours, thereby astounding the natives. Hard times subsequently compelled the owners to sell this history-making mechanical marvel.

The Northern Cross reached Jacksonville in 1840 and Springfield two years later. It was sold in 1845 to the Sangamon & Morgan Railroad. That company soon discovered it had acquired no bargain. Its new property was badly run down. The two locomotives stressed in the bill of sale could not turn a wheel. The philosophical purchasers, while waiting for delivery of reliable equipment, operated their trains with oxen. They also renamed their line the Great Western Railroad and extended the tracks to the Illinois border, where they connected with the Lake Erie, Wabash & St. Louis Railroad owned by the State of Indiana. Through subsequent sales and consolidations, these connecting lines became a part of the present-day Wabash System.

On November 20, 1848, the directors and stockowners of a new 10-mile railroad called the Galena & Chicago Union ordered a special train for an inspection trip over their recently completed roadbed. On their return trip they overtook a farmer who was hauling a load of wheat to town. They made a deal with him and transferred his grain to their makeshift observation car. This was the first shipment of wheat by rail to what is now the world's greatest grain market. Moreover, it traveled in triumph to the future home of famous corners in wheat on the first railroad ever built out of Chicago. The initial 7 miles of this line from the Chicago River to Kinzie Street were completed in 1847. On October 24th of that year the management placed on its rails the first locomotive disclosed to admiring Chicago eyes. It was called, quite appropriately, the *Pioneer.* This little engine, purchased from the Utica & Schenectady Railroad, was shipped by rail to Michigan City, thence by boat across Lake Michigan, and hauled by horses to the eastern end of the new traffic line. Chicago, at this time, had no rail connections with the East.

In 1855 the Galena & Chicago Union extended its line to Fulton, Illinois, on the eastern bank of the Mississippi. Nine years later it was merged with the Chicago & Appleton and rechristened the Chicago & North Western Railroad. In 1867 the enlarged transportation system extended its western line from Clinton, Iowa, to Council Bluffs. This achievement enabled the North Western to play an important part in the completion of the new Union Pacific Railroad, which had worked its way several hundred miles west of Omaha, just across the river, while its eastern neighbor was rushing rails to Council Bluffs. When America's first transcontinental line was completed in 1869, the Chicago & North Western was waiting to haul through trains from the Pacific Coast over the last lap of the run between San Francisco and Chicago.

The modern transportation system that began as a 10-mile road piled up an imposing list of achievements in the early period of its development. It built the first double-track line between Chicago and the Missouri River. It became in 1863 the first railroad west of Chicago to run a Pullman sleeping car. It built and operated in 1864 the first railway mail car that may, with entire accuracy, be described as a traveling post office. In 1869 the Chicago and North Western inaugurated the first dining-car service between Chicago and San Francisco. These were mere details in the growth of a famous carrier that played an essential role in the development of the vast area between the Great Lakes and the Rockies.

Transcontinental travelers with a gift for observation invariably discover on the main line of the Chicago & North Western one unique feature that still ties this modern carrier to the early days of American steam transportation. It is the only railroad in the United States that clings to the left-hand drive. When the work of double-tracking the line was begun in 1855 the job was handled by English and Dutch engineers. These experts were, of course, schooled in left-hand operation. They designed their switches and equipment accordingly and built all stations opposite the right-hand rails. In the next few years many important suburbs were built up in the Chicago area and most of them were given elaborate and costly stations. Therefore, when other American pioneer roads built by English or Dutch engineers shifted from left to right, the North Western, unconvinced that a genuine need for the change existed, refused to tear down its freight and passenger buildings. Today, every train in the United States travels on tracks of English standard gauge, but when the old Lake Shore unit of the New York Central shifted to the right some thirty years ago, the Chicago & North Western, true to the traditions of its engineers from overseas, became the sole American railroad with the right to call itself a consistent left-hander.

In 1845 the citizens of Rock Island, Illinois, and Davenport, Iowa, although separated by a river, became united in a common longing for an adequate contact with the world beyond their borders. They talked things over for a couple of years and then organized the Rock Island & LaSalle Railroad. The idea was better than the company's credit. No rails were laid in the next four years. In 1851, the company was reorganized and an amendment of the charter authorized the promoters to build into Chicago. On October 10, 1852, a passenger train rolled from the company's new station at Twenty-second Street, Chicago, to Joliet, Illinois, which was as far as the line extended. This development cheered Rock Island; but Davenport, across the Mississippi River, still felt the pangs of an inferiority complex. As a result of popular demand, the Iowa legislature took steps in two directions. A charter was granted to the Mississippi & Missouri Railroad Company for the construction of a line west from Davenport to Council Bluffs, neighbor of Omaha. Simultaneously, the Railroad Bridge Company was authorized to throw a span across the river to Rock

Island. While this was being built, the new line out of Chicago and into Rock Island was completed in the late spring of 1854. A little less than two years later the bridge was opened. On April 21, 1856, the first locomotive ever seen in the state, and appropriately christened the *Des Moines*, rolled across the Iowa line.

This forward step was an occasion for great rejoicing in Davenport, but the joy was short-lived. On May 6, 1856, a river packet, the *Effie Afton*, hit one of the new bridge piers and burned to the water. This accident, if it was an accident, partially destroyed the bridge. It also brought a lawsuit backed by the water navigation interests, who resented rail competition with river traffic. Abraham Lincoln, only a little more than four years away from the White House, fought this case for the bridge company. In May, 1858, an Iowa judge pronounced the bridge a common nuisance and ordered the demolition of that part of it which lay within the state of Iowa. Lincoln appealed to the Supreme Court of the United States and obtained a reversal of the decision by a majority of one judicial opinion.

The Mississippi & Missouri Railroad was incorporated in February, 1853. Seven months later actual construction was begun. Peter A. Dey was the engineer in charge. His assistant was Grenville M. Dodge, fresh from the Illinois Central and about to become the builder of the mighty Union Pacific. In October, 1855, a locomotive-drawn train made the run from Davenport to Muscatine, a distance of 27 miles. This was Iowa's first real peep into transportation possibilities. The event was almost too much for the blood pressure of the proletariat. An emotional local editor described the exciting event in his newspaper as "one of the most sublime triumphs of mind over matter that perhaps the history of the world records."

Iowa City wanted its railroad before the dawn of New Year's Day, 1856, and the builders tried hard to gratify this ambition. At nine o'clock in the evening of December 31, 1855, the road had still a thousand feet or more to go. The construction had been slowed up by a temperature of approximately 30 degrees below zero. In this emergency the local citizens volunteered to help the paid laborers. Huge bonfires were lighted and backs were strained while rails went forward. At eleven o'clock, with only 200 feet to go, the engine froze. Thereafter, the locomotive was propelled by man power as the track crept slowly but steadily toward its goal. As the church bells announced the New Year, the construction train reached the depot and the half-frozen engineer was carried in triumph from cab to station.

The Milwaukee & Waukesha Railway, chartered in 1847, was the beginning of the present Chicago, Milwaukee, St. Paul & Pacific System. When the line to Waukesha was begun, the management decided to continue construction to Madison, and thence to a point in Grant County on the Mississippi River. This change of plans also created a change of name. The new road was called the Milwaukee & Mississippi River Railway. In 1851, operations were begun between Milwaukee and Waukesha. Building was continued beyond Madison to

Prairie du Chien, and a branch northward connected Milwaukee with LaCrosse, a fast-growing Mississippi River community. In 1863 the State of Wisconsin chartered the Milwaukee & St. Paul Railway to connect these two cities. The new corporation acquired the Milwaukee & Mississippi River and several smaller roads.

On June 28, 1865, the Milwaukee & St. Paul was formally organized in Milwaukee, and Alexander Mitchell became the first president. In August, 1867, the new line purchased two small roads under construction between McGregor, Iowa, and St. Paul, via Austin, Minnesota. A ferry connection with McGregor was simultaneously acquired. In November, 1867, a complete rail connection was opened between Milwaukee and St. Paul. And thus train service from Chicago to the Twin Cities was made possible for the first time in history. In February, 1874, the name of the road was changed to the Chicago, Milwaukee & St. Paul Railway.

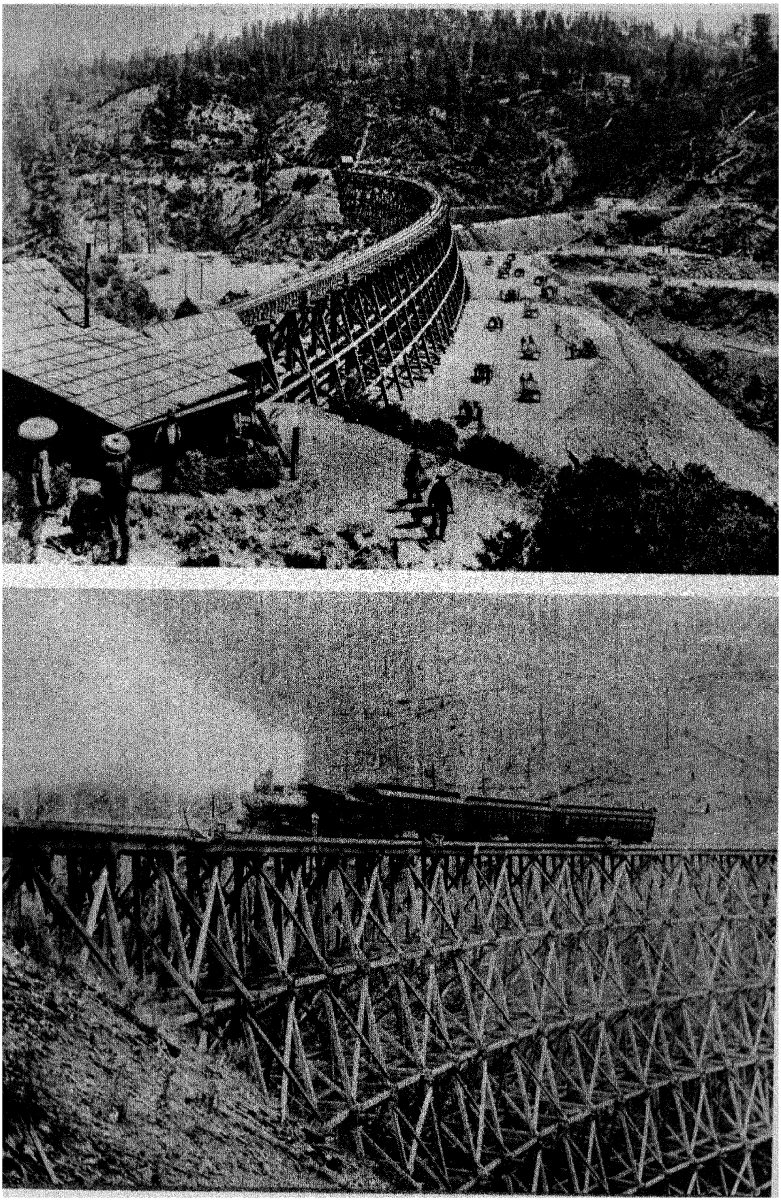
In 1849 the Illinois legislature chartered three roads which later became units of the Chicago, Burlington & Quincy. They were the Aurora Branch, the Peoria & Oquaka and the Central Military Tract. These three were merely feeders for other roads. In 1852 the Aurora Branch became the Chicago & Aurora. The Central Military Tract was completed in 1854, but the Peoria & Oquaka was not opened for traffic until 1857. Two years earlier, these three lines and other small roads were merged into the Chicago, Burlington & Quincy Railroad, which was incorporated in March, 1855.

It is an interesting fact that the first locomotive used on the Burlington was the *Pioneer*, originally built for the Utica & Schenectady by the Baldwin Company. This first locomotive ever seen in Chicago was put into service by the original unit of the Chicago & North Western in the fall of 1847. It was still going strong when the Burlington picked it up eight years later for a first run on a third railroad.

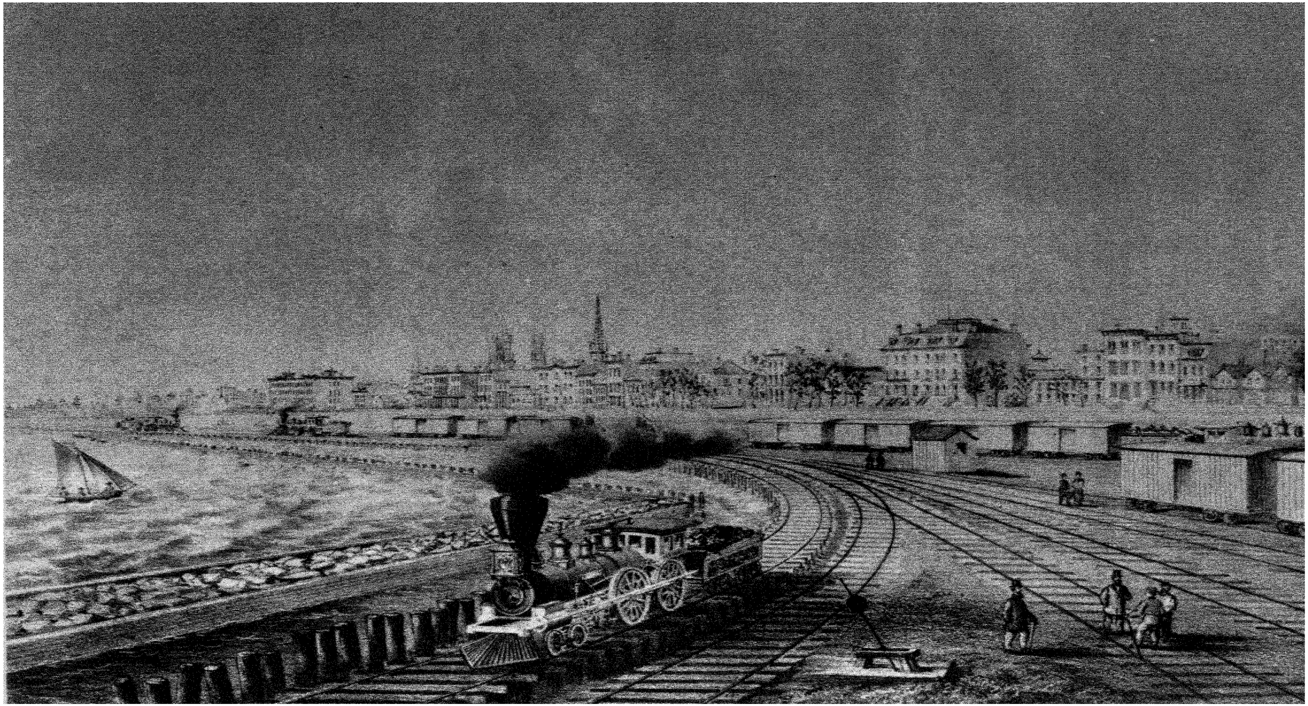
The Missouri Pacific Railroad of today began life as the Pacific Railroad. It was chartered on March 18, 1849, and authorized to build a line from St. Louis to Jefferson City, and thence to the western boundary line of the state. From that point the promoters hoped to complete the road to California, where gold had been discovered the previous year.

Thomas Allen, the first president, addressed a public meeting held in St. Louis early in 1850, and appealed for funds to aid a project that would demonstrate the fine public spirit of St. Louis. His eloquent appeal fell on fertile soil. One of his auditors, James H. Lucas, offered to become one of three men to subscribe a lump sum of $100,000. Two other St. Louis citizens snapped him up and the three subscribers tossed a coin for the privilege of taking the odd thousand.

Work on the new road was begun on July 5, 1851. Mayor Kenneth, of St. Louis, turned the first spadeful of Missouri clay. President Allen voiced the hope that the spades thrust into that soil on the bank of the Mississippi River would not gather rust "until they have been finally burnished in the gradation of the last division of our road through the golden sands of the Pacific."



(Above) Their honorable ancestors built the Great Wall of China. Charley Crocker's imported Coolies constructing a roadbed for the Central Pacific through the Sierra Nevada Mountains. (Below) A handicap to high speed. An old-time wooden trestle on the Northern Pacific before the days of steel structure.



Michigan Avenue, Chicago, in 1865, when the Illinois Central tracks were protected by piles from the waves of an inland sea.

That hope was wasted.

In 1852, however, the "first train west of the Mississippi" rolled over the first few miles of completed track. Construction was pushed rapidly in the next two years on the Pacific Railroad itself and on another line, the St. Louis & Iron Mountain, which afterward became a unit of the Missouri Pacific. The outbreak of the Civil War in 1861 stopped construction and caused the destruction of much of the road's equipment. Nevertheless the management persisted, and on September 20, 1865, the first train from St. Louis rolled into Kansas City. A new corporation known as the Atlantic & Pacific leased the original Pacific Railroad in 1872. Later, as a result of financial difficulties, a third company known as the Missouri Pacific was formed to take over the proposed line from St. Louis to California. In 1879 Jay Gould paid $3,000,000 for a controlling interest in the MOP and made it an essential unit of his Southwest System. The panic of 1884 plunged both the Missouri Pacific and the Iron Mountain into bankruptcy. In the process of reorganization they were combined with other lines into the present Missouri Pacific.

The Atlantic & Pacific Railroad, by an Act of Congress approved July 27, 1886, was authorized to build a road from Springfield, Missouri, to the Pacific Ocean, via Albuquerque and along the 35th parallel of latitude. The company was to be capitalized at $100,000,000, aided by land grants totaling 40,000,000 acres if completed by July 4, 1878. No steps toward actual construction were taken until October 25, 1870, when the transcontinental company acquired the South Pacific, a little line operated from Pacific City, near St. Louis, across the southwestern portion of Missouri. The enlarged company, still called the Atlantic & Pacific, completed its line across Missouri in 1871 and continued into Indian Territory. As a next step, the Atlantic & Pacific leased the 580-mile-long Pacific Railroad of Missouri, now the Missouri Pacific, but both roads soon went into bankruptcy. A committee representing the Atlantic & Pacific bondholders bought in the unfortunate railroad and reorganized it as the St. Louis & San Francisco Railroad Company. That was the beginning of the present St. Louis-San Francisco Railway.

CHAPTER X

DOWN THE OLD SANTA FE TRAIL

TWO INTELLIGENT HORSES harnessed to a halted carriage grew restless as four men argued a question of ways and means. The party had reached the banks of the Kaw. A ferryboat was waiting to take them across the river. Their combined cash assets would not offset the cost of a ticket. The subject of the debate was simple. Would the owner of the little craft agree to provide transportation in exchange for their promise to pay at some future date? They had borrowed their team from a sympathetic livery man. They carried cold lunches which had been put up in their homes. If the riverman gave them credit they could complete their journey and start their railroad. To deadhead or not to deadhead was the question on which the fate of a great enterprise hinged.

Destiny masquerading under the cloak of equine impatience answered the question. The horses, tired of waiting, plunged into the water and forded the stream. A few days later, on Monday, September 17, 1860, the Atchison, Topeka & Santa Fe Railroad was born.

The leader of that 50-mile expedition from Topeka to Atchison was Cyrus K. Holliday, who had written the charter and hustled it through the Kansas territorial council. He was accompanied by Milton C. Dickey, Joel Huntoon and E. G. Ross. When stock was subscribed and officers elected a few days later in the office of L. C. Challiss, Atchison member of the Kansas legislature, Holliday became the first president of the Santa Fe. Dickey was chosen treasurer. Ross and Huntoon were put on the board of directors. So, too, was Challiss, who had battled valiantly for the charter when it was up for debate in the House of Representatives.

There was no reference to Santa Fe in the original title. The new project was called the Atchison & Topeka Railroad Company. It was capitalized at a million and a half. Later, when a congressional land grant for the aid of the undertaking was obtained, an occasion for anxiety was created by a stipulation that the new railroad must be built across Kansas within ten years. Notwithstanding this warning, ground was not broken until November, 1868. In view of this delay, it was a stroke of genuine luck when Thomas J. Peter, a wealthy Cincinnati engineer, became interested in the venture, put a large sum of money into the stock of the road and assumed personal supervision of construction. Mr. Peter had many admirable virtues. He was a teetotaler. He refused to smoke or chew. As against these inhibitions, he had one vice that tended to speed the building of the road. He possessed a positive talent for profanity. When he swore, the atmosphere took on an ultramarine hue and reeked of sulphur. This deplorable habit played its part in the Santa Fe's first five-year program.

Ten miles of roadbed were ready for ties and rails in the latter part of March, 1869. One month later, 7 of the 12 miles between Topeka and Wakarusa were completed. A picnic celebration of this accomplishment was staged in this small Kansas village with a picturesque Indian name. There were many eloquent speeches, but President Cyrus K. Holliday led the oratorical flight. He predicted that the new road would some day climb the Rockies and reach old Santa Fe. While his auditors gasped their astonishment, the daring rail executive crossed his arms at shoulder height and exclaimed:

"Fellow citizens, imagine, if you please, my right hand as Chicago, my left as St. Louis. Eventually the railroad we contemplate will reach these two cities and, crossing at Topeka the intersection of my arms, will extend to Galveston, the City of Mexico and San Francisco. The coming tides of immigration will flow along these lines of railway and like an ocean wave will advance up the sides of the Rockies and dash their foaming crests down upon the Pacific slope."

This was too much for the citizens of Wakarusa. They had been pushed just a bit too far. A local youth with a pretty wit and a gift of expression, one Tom Anderson, voiced the sentiment of the gathering. Throwing himself on the grass in an ecstasy of mirth he exclaimed in tones of choked rapture:

"Oh, the damned old fool!"

God was good to Cyrus K. Holliday. He permitted him to see his dream come true. When the first president of the Santa Fe died on March 29, 1900, the line for which he was responsible was operating fast trains from Chicago to San Francisco, from St. Louis to Galveston and from old Santa Fe to the City of Mexico.

Tom Anderson probably did not live quite that long.

Cyrus Holliday was a dreamer, but he had his practical moments. He made a fortune of $20,000 in a railroad deal as a fairly young man and decided to invest these winnings in virgin territory. He moved out to Kansas from Pennsylvania in 1854 and looked for a location where he might create a city. The outcome of his activities was Topeka, which in an Indian dialect means "a good place to dig potatoes." The new community soon gave its founder proof that the name was appropriate. One of the first potatoes he dug was a legislative agreement to make Topeka the capital of Kansas. An even larger tuber was the charter that sprouted into the Atchison, Topeka & Santa Fe Railroad.

Dreamer Holliday was wide awake when he interested the profane Mr. Peter in the development of the Santa Fe. The new chief engineer needed every oath in his repertoire to win his five-year race. There is still talk in Kansas of the way he drove his construction crews. On June 28, 1869, regular train service was established on the 17-mile line between Topeka and Carbondale. August of the next year saw trains running to Emporia, 34 miles away. In 1871 the line was extended to Weston, a distance of 78 miles. And then the money ran out. Work stopped and Peter swore.

The project came to life again in 1872. The Santa Fe was still 300 miles away from its goal, with less than two of the ten allotted years to go. If the road failed to reach the state line in 1874 it would forfeit all land grants and sink into bankruptcy. Peter's estimates proved that

$5,000,000 in cash was needed to win the race. That money, by some modern miracle, was raised and the chief engineer brushed up his blasphemy. On March 31, 1873, the Santa Fe claimed 497 miles of rails in actual operation, on which gross earnings of $1,200,000 were piled up in a single year. Four years later almost 800 miles of road were under operation, including a line to Pueblo, Colorado, which was opened on March 1, 1876. Peter's five-year drive was a sacrilegious success.

The swift pace set by construction gangs at the western end of the Santa Fe trail was responsible, of course, for occasional stretches of questionable roadbed. Again, the lack of money impelled the engineering department to avoid spending a single cent for unnecessary bridges or costly cuts that would have eliminated the worst of the grades. The first line of rails, as a consequence, was not ideal for passenger traffic. One cynical traveler issued a devastating blast against the creators of a transcontinental line that is famous today for its fine roadbed and equipment. "The original builders of the Atchison," he observed, "followed the line of the Santa Fe trail so religiously that, if the trail skirted a ten-foot stream for a quarter of a mile to strike a shallow spot for fording, the railroad builders did likewise, instead of bridging the stream where they struck it; and where the trail ran up a tree or hid in a hollow rock to avoid wolves or savages, the railroad did the same!"

The author's charge that the Santa Fe surveyors developed an inhibition against Indians was tinged, one fears, with a slight dash of exaggeration.

With his race against time won by a tiny margin, Cyrus K. Holliday plunged his hand into the bag and drew out another prize. Peter's successor was William B. Strong, a rail expert with twenty years of experience behind him. The new chief engineer was told to "complete the road to Santa Fe and as much farther west as possible." The directors and owners of the Atchison were beginning to believe that their first president had not proved himself hopelessly insane back in 1860 when he predicted a main line to the Pacific.

Strong's surveys convinced him that he could not carry out the initial specification of the first order he received. A direct right-of-way into the ancient adobe-built capital was impracticable. He headed for Albuquerque and drew plans for a side line. On February 9, 1880, a branch from Lamy to Santa Fe was opened for traffic and the first phase of the Holliday dream came true. One month later the new railroad reached Albuquerque and was operating 1,318 miles of track.

On the first day of the following October the Santa Fe main line reached San Marcial, 103 miles farther south. From this point onward construction was continued under the corporate name of the Rio Grande, Mexico & Pacific Railroad. Deming, a point of contact with the Southern Pacific, was reached in March, 1881, and Santa Fe trains began running through to the Pacific Coast. Shortly afterward connections were established with the Mexican Central Railroad at El Paso, on the Texas border, and service from Santa Fe to Mexico City was announced. Almost all of the Holliday dream was now a substantial reality.

This was the first president's cue for a farewell bow. He retained his position on the board of directors but turned his office over to Strong. The new president, inheriting a strangle grip on the entire Southwest, soon demonstrated his ability to hold his own against the Huntingtons, the Goulds and all other competitors. At the end of 1887 the Santa Fe System was operating almost 7,500 miles of rails. It was offering through service from Chicago to San Francisco. Its fast trains connected Denver and Mexico City, and maintained regular schedules between the town that Holliday had built more than a quarter of a century before and the Gulf of Mexico he had balanced against Lake Michigan in his famous Wakarusa speech. Tom Anderson's "damned old fool" could afford to be philosophic in the next thirteen years. He was enjoying a life of contented retirement on the financial fruits of his folly.

The original Atchison & Topeka Railroad made history as it followed faithfully the stretches and windings of the famous old Santa Fe Trail. There were few divisions of the main line that did not build across battlefields where Kiowas, Comanches, Arapahoes, Pawnees, Apaches or Cheyennes had staged midnight attacks on fleets of prairie schooners between Yankee trading outposts and the land of the fandango. The building of the railroad brought a fresh crop of unmarked graves and new forms of violence. The Santa Fe was a connecting link between the worst of the cattle towns in Kansas and the home of the sagebrush and cactus where Billy the Kid set fashions in gunplays. Hard-riding and fast-shooting cowboys from Texas were colorful followers of Kit Carson and Buffalo Bill.

Abilene was the first of the famous cow towns. It was picked by Texas cattle kings in 1867 as a convenient gateway for livestock headed east. Droves of longhorns no longer followed the trails to Missouri steamboat landings. They were headed to Abilene and loaded into Union Pacific boxcars. When the Santa Fe roadbed reached Newton it became a real competitor for the cattle trade. Wichita, Raymond, Larned and Great Bend had their days, but their glory soon faded before the rise of Dodge City. This new cow town, located at the most southern point of the Santa Fe's Kansas division, was the shortest jump from the Panhandle. It was born in 1872, only a few weeks before the arrival of rails. It was located in the heart of a section that had been patronized for centuries by herds of bison. That is why the new metropolis came into existence under the name of Buffalo City. In its early days it was a busy shipping point for trainloads of buffalo meat and hides. As wild life fled before the advent of a wilder civilization, Dodge City began creating a history that will live forever in the annals of America.

The cowboys from the Panhandle were playful souls. Under the inspiration of rot-gut whisky they relieved their feelings from time to time by shooting up the town. A wearer of chaps and spurs could go against copious doses of red-eye without losing his ability to shatter a street light with a single snap shot from his .44 as he raced his pony through crowds of admiring spectators. Gambling was wide open, and representatives of the oldest profession plied their trade in active opposition to the barrooms. The normal life of the community provided ample material for shallow graves in Boot Hill, a picturesque cemetery where feet retained their leather covering and headstones were unknown.

Eventually, of course, the forces of law and order made their influence felt. Serious-minded citizens devised a novel calaboose for intoxicated revelers. It was a covered well, fifteen feet deep, into which the inebriates were hurled and held until they recovered sobriety. The invention of this form of incarceration gave birth to a famous underworld phrase. In the effete East of today, a gentleman behind bars is known to his friends as an occupant of the cooler.

More vigorous steps were adopted to control visitors and local inhabitants whose offenses went beyond looking upon rye when it was red. In the later seventies Ford County was organized as a background for Dodge City, and the famous Bat Masterson was appointed sheriff. Bat was as quick on the draw as any visiting gunman, and his aim was deadly. He shared honors with his brother, Ed, who was marshal of Dodge City. The brothers encountered one afternoon a group of Texas cowboys under the leadership of one Corporal Walker and a fast-shooting Panhandle celebrity named Wagner. The representatives of the law met the wearers of spurs as they swaggered out of a dance hall. The Dodge City marshal courteously suggested that it might be a good idea to lend him their guns until the celebration was ended. Wagner's reply was to place a .44 against Ed Masterson's body and pull the trigger. With his clothing in flames, the marshal staggered and exclaimed:

"I've got my dose, Bat."

And then came one of those lightning gunplays for which the sheriff of Ford County was famous. His heavy revolver roared twice and Walker, leader of the cowboys, went down with two slugs through his lungs. A third shot killed Wagner as he stepped from the doorway into the street. With his guns smoking, Bat Masterson invaded the dance hall. His entrance was not disputed. The cowboys scattered and sought safety in flight. So the sheriff returned to the spot where his brother had fallen. Ed Masterson was breathing his last gasp as Bat arrived. When the marshal's eyes were closed, the man who was the sheriff of Ford County and one of the deadliest shots in Kansas sat down on the sidewalk and wept openly and unashamed. He was thinking, he explained, of his mother's grief for a favorite son.

While Bat Masterson upheld the law in Dodge City, William B. Strong swung into action at the western end of the line. His orders were to take the Santa Fe west and pick up valuable territory as he went along. In carrying out these instructions he precipitated one of the most spectacular railroad wars in American history. His first important objective was Pueblo, where he could make connections for Denver with a local narrow-gauge road called the Denver & Rio Grande. This contact was established on March 1, 1876, and the Santa Fe announced through service from Denver to Kansas City via three lines of rail, including the Kansas City, Topeka & Western, which the parent road had leased on October 1, 1875. The next logical step was an extension of the Santa Fe into New Mexico. This meant crossing the Rockies to tap an apparently unprofitable territory. Strong's preliminary surveys showed that Raton Pass on the Colorado-New Mexico line, 8,000 feet above sea level, was the only practical route through the mountains. The same discovery was made simultaneously by the Denver & Rio Grande and the management of that road began preparation for a line to New Mexico. Strong, now manager of the Santa Fe, telegraphed Albert A. Robinson, his successor as chief engineer, a comprehensive order.

"Proceed at once to Raton Pass," he wired. "Occupy the pass when you get there—and *hold it.*"

Robinson traveled on a Denver & Rio Grande train from Pueblo to El Moro, the railroad point nearest the Raton Pass. A fellow passenger was Chief Engineer McMurtrie, of the Rio Grande. Robinson smelt a rat. When the train reached El Moro, McMurtrie went to bed there. Robinson did not follow suit. Instead, he continued his trip overland to a shack occupied by Dick Wooton, a famous scout of old Santa Fe trail days, who operated a toll road over Raton Pass. At five o'clock next morning a hurriedly assembled construction crew, including Robinson and Wooton, armed with lanterns and tools and guns, was hard at work in the pass building a grade for the Santa Fe. Shortly after daylight a working force for the Rio Grande arrived at the mouth of the pass. A battle of words was fought, but the Santa Fe men held their ground and kept their hands on their guns. After many threats, the Rio Grande forces withdrew. McMurtrie's comfortable night's sleep in El Moro had cost his road a path through the Rockies.

The next clash came in the Grand Canyon of the Arkansas, about 42 miles west of Pueblo. The Raton Pass led to New Mexico. The Grand Canyon of Arkansas was a gateway through the Rockies to the interior of Colorado. Again, the Santa Fe was in competition with the Rio Grande, and this time the prize was Leadville, where the boom of 1878 had just begun. General Manager Strong laid his plans to build through the Canyon. Rio Grande officials, who had a monopoly on the local telegraph lines, deciphered his code messages and decided to outwit him. They organized a working crew of a hundred men and ordered them to move from Pueblo to the Canyon on the morning of April 20, 1878. Word of this maneuver reached Strong on April 19. He asked the Rio Grande for a special train to Pueblo. His request, naturally, was turned down.

Fortunately for Strong, one of his ablest engineers, William R. Morley, was in La Junta at the moment, only 64 miles away. Strong wired him the facts and told him to beat the Rio Grande workers to the scene of the contest. Morley rode a locomotive over his own road to Pueblo where he arrived at three o'clock in the morning. He was 40 miles from Canyon City and his attempt to charter an engine for this run over the Rio Grande rails was futile. A quiet bit of sleuthing informed him that the Rio Grande workers would leave Pueblo for the Canyon aboard a special train in the next two or three hours. It was up to him to beat that train. He bought a good horse and started for Canyon City at full gallop. Within sight of his destination the horse dropped dead. Morley got to his feet and ran into town at the top of his speed. A hurried explanation of the situation turned the trick. Canyon City liked the Santa Fe and hated the Rio Grande. A force of local citizens armed with shovels and guns raced the two miles to the mouth of the Canyon and began to dig dirt. One short half-hour later the Rio Grande army arrived.

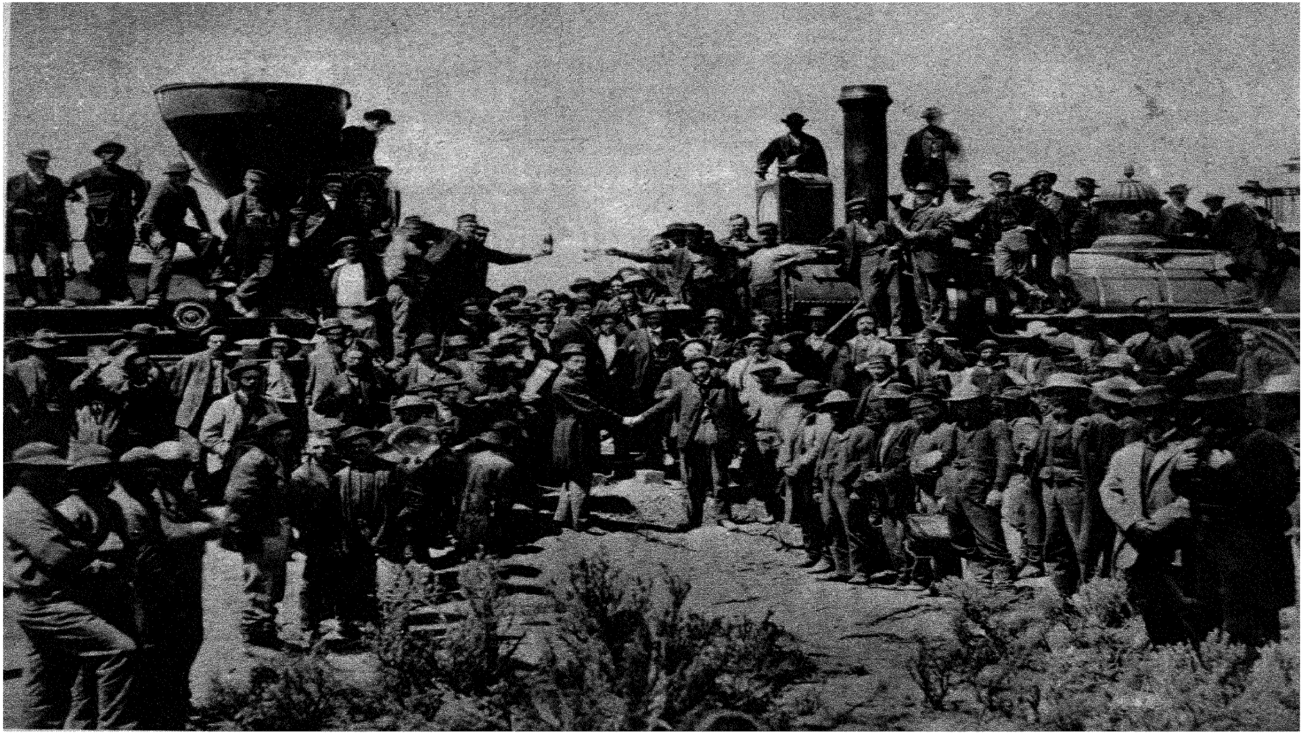
This was the first skirmish in a war that lasted two years. It was fought through state and federal courts, and it brought bloodshed and bitterness to the people of Colorado. Both sides unhesitatingly restorted to violence. The Santa Fe imported Bat Masterson and a gang of gunmen to block the armed activities of the Rio Grande's local fighters. Eventually, Jay Gould, head of the Denver & Rio Grande Railroad, grew weary of the strife and offered terms that Strong was glad to accept. His battles in Colorado, as a matter of fact, merely masked more important activities on his Western front. While he kept his rivals busy behind him, he was rushing his rails across New Mexico to a contact with the Southern Pacific. When he became president of the Santa Fe on July 12, 1881, his fast trains through Colorado were en route to Pacific Coast destinations. The Atchison, Topeka & Santa Fe had now become an important transcontinental railroad.

CHAPTER XI

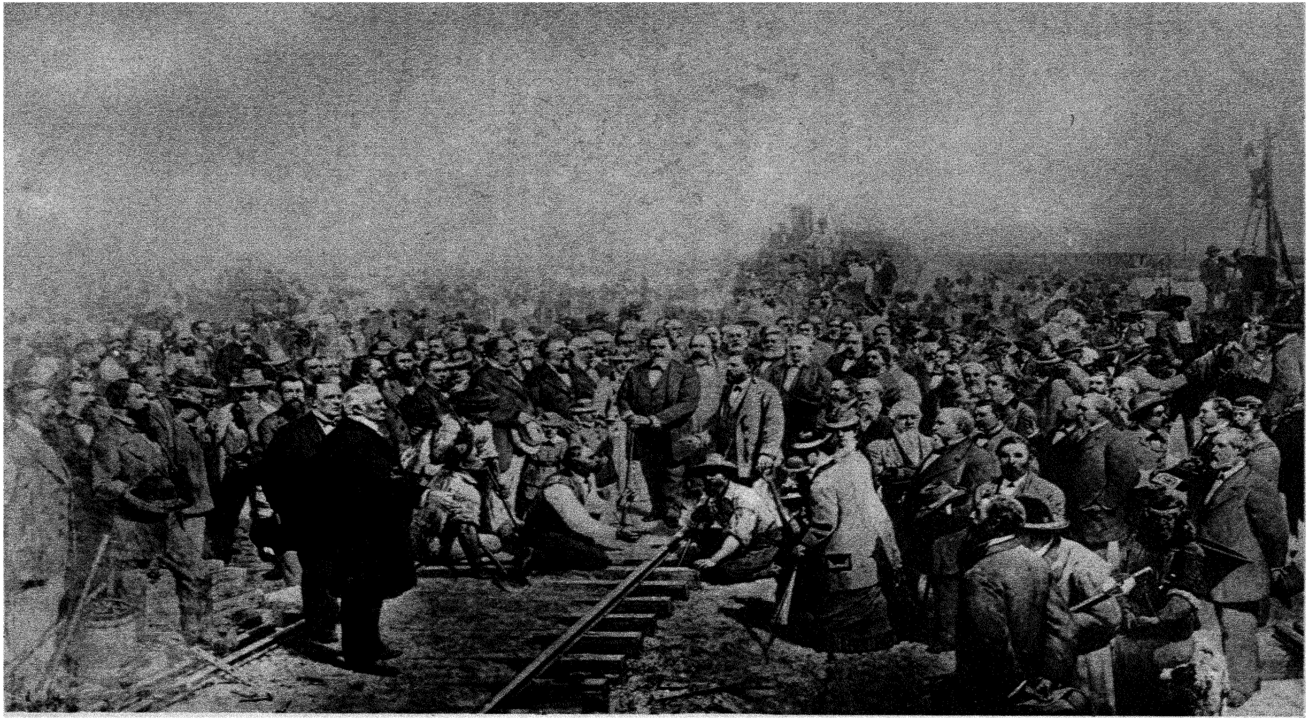
Where the Sioux and the Buffalo Played

The dining room was hot, the food was bad and flies were active. Two guests of the old Pacific Hotel in Council Bluffs felt no temptation to linger at the dinner table that sultry afternoon in August, 1859. They retreated to the front stoop, hoping for a vagrant breeze from the Missouri, and drifted into conversation. The older of the two, a tall, lanky, slow-speaking, small-town lawyer, proved his ability at cross-examination by eliciting from his new acquaintance various pertinent facts about his life on the plains. The younger man, a twenty-eight-year-old civil engineer, was just back from a trip up the valley of the Platte. He had been sent west of the river by the new Mississippi & Missouri Railroad Company to find a logical route for a road to the Pacific.

The management of this new line building across the state of Iowa had given some thought to the possibility of an extension to the west. It was important, in any event, to know where a railroad between California and the Missouri River should locate its eastern terminal. The Mississippi & Missouri was headed for Council Bluffs. It was not too late to change that destination if the engineers were wrong in their guess that the transcontinental railroad everyone was talking about would



Union and Central Pacific locomotives touch noses as the wedding of America's first transcontinental railroads is reported by the tapping of a telegraph key.



East meets West. The driving of the golden spike at Promontory Point, Utah, on May 10, 1869.

begin building somewhere near Omaha, on the other side of the river.

"What's your idea?" the lawyer asked his young companion.

"It will start at Omaha and follow the Platte," was the confident reply.

"Why?"

"That is the logical route. It borrows the trail made by buffalo centuries ago. The Indians and fur trappers never found a better path to the Pacific. The Mormons used it when they moved their homes to the shores of the Great Salt Lake. So did the emigrants who first headed for the Columbia River country. Back in forty-nine, it was a short cut for the gold seekers when they made their dash to Sutter's Creek. Like a lot of other white men ahead of me, I'll back the judgment of the buffalo and the Sioux."

This chat on the stoop of the Pacific Hotel was continued in Washington in the spring of 1863. The forty-odd months that intervened had wrought radical changes in the lives of both men. The small-town lawyer, Abraham Lincoln, was now President of the United States. The former young civil engineer had become an officer in the Union Army and was Commander of the Corinth District down in Mississippi. Three years later he began converting into facts the theories he had confided to Abraham Lincoln in the summer of 1859. He was Major General Grenville M. Dodge, the man who built the Union Pacific.

Talk of a transcontinental railroad had covered a span of twenty-seven years when Lincoln and Dodge first discussed the Platte Valley route. It had begun on February 6, 1832, when Judge S. W. Dexter, of Ann Arbor, Michigan, printed in his newspaper, *The Weekly Emigrant*, an editorial that advocated the construction of a railroad across 2,000 miles of wilderness between the Great Lakes and the Pacific Ocean. This idea was endorsed in 1836 by John Plumbe, a civil engineer of Dubuque, Iowa, who called at his home the first public meeting ever held to consider the project of a Pacific railway. And then, in 1840, along came Asa C. Whitney, a crusader as persistent as Peter the Hermit.

Whitney, a New York merchant, became a transcontinental railroad fanatic while making a business trip through the cities of China. He foresaw the possibilities of profitable trade with the Orient, which Hill and Harriman captured more than half a century later. He gave his private fortune and ten years of his life to his fight for the realization of a dream. He had no personal ax to grind. He was willing to build the road as a government undertaking and without profit to himself. When Congress turned a cold and unsympathetic eye on his plans and memorials, he obtained the backing of fourteen state legislatures. Three times in ten years he got his Pacific Railroad bill before the House and Senate in Washington, and three times in succession it was killed by Senator Thomas A. Benton, of Missouri, leader of a Southern bloc that advocated a road through Texas to California to tie slave-owning states to Far Western territory. After a last, overwhelming defeat in July, 1848, Whitney gave up the fight. Crushed and penniless, he eked out a meager living in his few remaining years by peddling milk through the streets of Washington.

The next martyr to the cause was Josiah Perham, of Boston, who fathered the idea that a transcontinental road could be built without government aid by selling subscriptions of $100 each to a list of 1,000,000 American patriots. Perham organized the People's Pacific Railroad on March 20, 1860, and announced that he was ready for the million subscribers. They did not materialize. The People's Pacific, however, laid the groundwork for a road that eventually wound its way to Puget Sound. It was the forerunner of the Northern Pacific. Unfortunately, the optimist who thought the public would build its own line across the continent did not live to see a railroad actually reach the Columbia River country. Perham, like Whitney, squandered a private fortune to back an idea and died a poor as well as a thoroughly disillusioned man.

The Civil War gave the Washington government an opportunity to end all arguments about the best route for a Pacific railroad and a convincing excuse for financing so daring an undertaking. The secession of Southern states eliminated from Congress the legislators who had blocked for a quarter of a century every proposal to build through the North or Middle West. Battles below the Mason and Dixon Line backed the pleas for a line of communication which would keep California and Oregon loyal to the Union. It was constant hammering on this theme that inspired the suggestion of "Union Pacific" as a potent name for a patriotic project.

The Thirty-seventh Congress authorized the creation of the Union Pacific Railroad, and Abraham Lincoln's signature made the measure a law in the summer of 1862. The permission to build granted by the House and Senate did not hold promoters to a rigid right-of-way. The language of the bill approved construction from a point on the Missouri River near the 42nd parallel of latitude to a meeting point with the eastbound Central Pacific. The exact location of a Missouri River terminal was left to the judgment of President Lincoln. That is why he sent for General Dodge next spring and backed his recommendation of Omaha as a starting point for the Union Pacific.

Congress in the days of the Civil War developed the habit of passing the buck to President Lincoln. If a problem proved knotty, it was handed to Abe. The lawmakers proceeded on the theory that he could always take time off from the job of defeating the South to handle technical questions that taxed the brain power they wished to concentrate on patriotic talks. That is why they called on the Chief Executive to decide what space should be left between rails when tracks were laid for the transcontinental road. It was an important problem. Most of the lines in the East, blindly following a British lead, had set a gauge of 4 feet, 8½ inches. Five feet was the rule in the South. The Erie and a few smaller roads had hit on a 6-foot gauge. Other carriers had ruled in favor of 4 feet, 10 inches; 5½ feet; and various other widths. Everyone realized that the gauge selected by the Union-Central Pacific would soon become the standard for all railroads in the United States.

Lincoln delved into this fresh problem with customary thoroughness. He saw no merit in the 4-foot, 8½-inch gauge which our pioneer roads had borrowed from England and which is today the American standard. This arbitrary measurement, he discovered, was established on the other side of the Atlantic because it was the exact width of English wagon roads. These roads, in turn, had followed slavishly in the tracks of chariots brought into the country by the Roman conquerors. The chariot wheels, it seems, were set just 4 feet, 8½ inches apart because that happened to be the space covered in two strides by a soldier in Caesar's army. The former Illinois rail-splitter could see no particular reason why a long-dead centurion of the guards should dictate terms to New World track layers. On the other hand, he easily saw the coming of a day when this particular width would prove a handicap to makers of railway equipment. After long and careful consideration he suggested a 5-foot gauge.

Any practical railroad man must feel a sense of keen regret that Lincoln's recommendation was ignored. Congress, with an eye on the South, promptly overruled the White House verdict and voted for the 4-foot, 8½-inch gauge. That difference of 3½ inches handicapped Pullman when he built his first palace car. It detracts today from the comfort of passengers on streamlined trains. As experts had predicted, the Union Pacific gauge promptly became the standard. Other railroads fell into step more or less promptly. The roads in the states that Lincoln had conquered held out for thirty-odd years. Finally, in the spring of 1886, every roadbed in Dixieland was changed to the standard gauge. The Louisville & Nashville tracks were tackled at daybreak on a Sunday in May by armies of workmen. When the sun went down that evening one line of every mile in the L & N system had been moved 3½ inches closer to its twin. Continuous train service thus became possible from Maine to Mexico and from Puget Sound to the Suwannee River. Less important, the transportation companies below the Potomac River paid a stiff price for the various annoyances the Jefferson Davis government had caused the Thirty-seventh Congress.

The Union Pacific Railroad Company was formally organized in Illinois on September 2, 1862, with Henry B. Ogden, of Chicago, as president; Thomas W. Olcott, as treasurer; and Henry V. Poor, as secretary. After these formalities were concluded, the promoters rested on their oars. Even the familiar dirt-digging ceremony was postponed until the final month of 1863.

There was one individual, however, who refused to mark time. Theodore D. Judah, a young engineer from the East, had gone to California in 1854 to build the Sacramento Valley Railroad. This tiny undertaking, delayed by a lack of capital, soon became a mere detail in a mighty dream. Judah, bady bitten by the transcontinental railroad microbe, determined to make the California project a first link in a line from San Francisco to the East. He persuaded a railroad convention held in California on September 19, 1859, to send him to Washington as its accredited representative. When he reached the nation's capital he proved himself a more adroit lobbyist than Whitney or Perham. He was a practical engineer and he soon demonstrated the fact that he knew more about transcontinental road possibilities than anyone else in Washington. This enabled him to capture the job of secretary to the Pacific Railroad Committee of the House of Representatives.

He needed this assignment. It gave him the privilege of the floor in both House and Senate. With this advantage, it was merely a question of time and eloquence. On May 6, 1862, the House of Representatives passed an act authorizing the construction of the Central Pacific Railroad with federal government aid. The road would run from Sacramento to the California-Nevada state line and continue east until it met the Union Pacific's rails. On June 20, this measure passed the Senate. Abraham Lincoln signed the bill on July 1, 1862, and Judah clamored for action. A few months later, on the eighth day of the year 1863, ground was broken at Sacramento for the world's first transcontinental railroad.

Congress felt it had granted liberal terms to the Union Pacific and Central Pacific projects. It agreed to loan the roads, on easy terms, $16,000, $32,000 and $48,000 a mile, varying with the type of construction required for prairie, hill and mountain country, and granted a bonus of ten sections of public land for every mile of railroad built. The only Union Pacific activity inspired by these inducements was a ground-breaking ceremony staged at Omaha on December 2, 1863, nearly eleven months after the Sacramento celebration. Meanwhile, however, General John A. Dix had succeeded Ogden as president, and Thomas C. Durant, of the Mississippi & Missouri Railroad, had become vice-president and actual head of the Union Pacific.

These gestures created publicity but did not produce cash subscriptions sufficient to finance a single mile of roadbed. Convinced that further inducements were necessary, Congress practically doubled the largesse. A new bill, passed in 1864, offered twenty sections of land, instead of ten, for every mile of completed railroad. A more important change in the subsidy plan authorized the two railroads to borrow money for construction under an arrangement which, in effect, provided a government guarantee of the loans. The Union Pacific and Central Pacific were now permitted to bond their lines at $16,000, $32,000 and $48,000 per mile and make these bonds unqualified prior liens. Government loans in the same sums thus became second mortgages. With the government holding the bag, there could be no question about the safety of the underlying loans.

This concession, which should have produced funds sufficient to cover the entire cost of a transcontinental railroad, made approximately 40,000 sections of public land an added prize for promotion. And yet, curiously enough, the speculators hesitated. They had no faith in the future earning power of the railroad. They were not even sure that it really could be built. A leader was needed, but two years slipped by before he was found. In the fall of 1866 the Washington government finally persuaded Oakes Ames, a Massachusetts member of the House of Representatives and a wealthy manufacturer of shovels, to undertake the task. His acceptance of this responsibility meant that a new name was ready for the list of victims laid on the line that ultimately tied the Atlantic and Pacific with twin bands of iron.

Crime walked the ties when America's first transcontinental railroad stretched its length across the prairies. Life was cheaper than whisky in the cities that blossomed in a day and died in a night as gamblers and gunmen and painted women followed the hells-on-wheels that journeyed to the West. American loyalty and courage and endurance furnished a background of heroism for sordid graft that operated under a title borrowed from abroad. Before the echoes of cheers for a great national undertaking had died into silence the country was rocked by a scandal that threw its shadow on the nation's government.

The promoters who first undertook the actual building of the Union Pacific were not Whitneys, or Perhams or Judahs. They were interested in profits and unhandicapped by patriotism. With a clear view of the possibilities, Thomas C. Durant purchased in March, 1864, a controlling interest in the Pennsylvania Fiscal Agency, which had come into existence five years before under a charter that was nothing if not liberal. With the permission of the Pennsylvania legislature the company's name was changed to Credit Mobilier of America, a title that was borrowed from a banking institution in France.

Durant's plan was simple. The stock of his Credit Mobilier was split up between the Union Pacific directors and the Credit Mobilier became the construction company for the Union Pacific Railroad. All first mortgages and the government's second mortgage bonds went into the treasury of the renamed corporation. These mortgages ultimately netted the sum of $50,863,172.05, which was probably more than the legitimate cost of building the road. In addition, all money received from sales of stock and land and income bonds was allotted to construction. Altogether, the cash or equivalent paid into the Credit Mobilier treasury in a period of five years was in the neighborhood of $75,000,000. With this setup, there was no urge for economy in the construction of the Union Pacific.

Peter A. Dey, the man who built the Mississippi & Missouri Railroad, was the first chief engineer of the Union Pacific. Construction under his direction was begun on December 2, 1863, when ground was broken at Omaha. The Dey survey estimated a cost of $30,000 per mile for the first hundred miles west, and $27,000 per mile for the second hundred. With $32,000 a mile available from first and second mortgages there seemed a chance to go through the initial stretch of prairie country with a pickup of almost $750,000 for the costly construction further west.

The chief engineer's estimate did not fit into the final picture. On September 23, 1864, the Union Pacific directors approved a proposition made by one Herbert

M. Hoxie, a company employee, to build and equip the first hundred miles of roadbed out of Omaha for $50,000 a mile. Two weeks later, on October 4, this contract was extended to the hundredth meridian, about 247 miles from Omaha. This revised contract was then assigned to the Credit Mobilier's branch office, located next door to the Union Pacific headquarters in New York. Also, a change in the original survey was announced. This route carried the roadbed due west from Omaha to the Elkhorn River. On the advice of a so-called consulting engineer a new line was adopted. It added about 9 miles of roadbed in a distance of only 13 miles. The excuse given was that this survey would eliminate grades of 66 and 80 feet. These grades were not, as a matter of fact, eliminated by the second route. Nearly forty years later the Union Pacific, under the management of E. H. Harriman, eliminated that grade-elimination and killed the 9 unnecessary miles that had been added arbitrarily to the first stretch of main line between Omaha and Ogden.

These developments disgusted Chief Engineer Peter A. Dey. He resigned on December 30, 1864, exactly one year after his appointment. Sixteen months later, on May 1, 1866, Major General Grenville M. Dodge was given a leave of absence by the United States Army and took charge of construction. In this year, also, Oakes Ames and his brother, Oliver, became stockholders in the Credit Mobilier. Oliver Ames was elected to the Union Pacific directorate on October 3, 1866; and when Dix resigned as president shortly afterward, the new director succeeded him as head of the road. With Dodge as chief engineer, backed by the Ames brothers, the dirt began to fly. Only 11 miles of railroad were actually in operation on September 25, 1865. This figure was increased to 40 miles before the end of the year, but real progress began in 1866.

The better part of five years was wasted while promoters wrangled over the birth of the Union Pacific. That loss was largely made up in the next thirty-six months. Before the end of the final drive the construction crews on the new transcontinental railroad were setting speed records that still stand as shining marks for modern railway builders.

CHAPTER XII

RAIL DRAMA IN DUTCH FLAT

DUTCH FLAT could boast more gold dust than drawing boards in the fall of 1860. There was, however, a wide counter in Doc Strong's drugstore. This was good enough for Theodore D. Judah, just back from a surveying trip through the Sierra Nevada Mountains. While the admiring druggist peeped over his shoulder, the young engineer put on paper the profile of a pass through which a railroad could be built to the east. It was a far more practical route than any government engineer had found and reported. It would take the rails over the mountains at a point 128 miles east of Sacramento on a maximum grade of 105 feet to the mile. Judah's estimates showed an outside construction cost of $150,000 a mile. If these figures stood up, the discovery of that pass in the heights above Dutch Flat meant a saving of 184 miles in distance and $13,500,000 in cost for the western end of a transcontinental railroad.

Dr. D. W. Strong was quite as excited as the discoverer of the pass. His pulse quickened as Judah laid out a fresh sheet of paper and wrote in bold script: "Articles of Association of the Central Pacific Railroad of California." Then he took the pen and signed his name for a stock subscription. So, too, did Judah. Neither man knew how or where he would get the money to pay for the stock, but that was a minor detail.

Judah had made the trip up the slopes of the Sierra Nevadas on a shoestring. The few capitalists in the California of that day took to side streets and bypaths when they saw "Crazy Judah" coming their way. The cost of the survey was raised by the engineer's friends in the mountains. Dutch Flat, Grass Valley, Illinoistown and Nevada City, four tiny settlements in the foothills, financed the exploration. Mrs. Judah went along and did her bit. While her husband and his helpers studied grade possibilities, she caught mountain trout for their meals. Between times, she made sketches of the beautiful scenery. A couple of these drawings later adorned stock certificates issued by the Central Pacific.

The crazy Judah-Doc Strong railroad was capitalized at $125,000. That minimum amount was a necessary preliminary to a road through the mountains. California statutes provided that stock to the value of $1,000 a mile must be subscribed before a railroad could be incorporated. In the next three days Judah and Strong picked up in Dutch Flat and near-by mountain hamlets a collection of signatures that pledged the writers to purchase stock valued at $46,500. That left only $78,500 to raise. So Judah packed his bag and hurried West. Much to his disgust, not one share could be sold in San Francisco.

Sacramento was more sympathetic. The merchants in that community agreed with Judah that a railroad to the east, even if it never got beyond the mountains, would bring valuable business to their stores. The balance of the capital stock was subscribed at a meeting held in a room over the hardware store of Huntington and Hopkins at 54 K Street. Four of the men who took stock in that project became multimillionaires. Collis Potter Huntington and Mark Hopkins were the proprietors of the hardware store over which the stock subscription meeting was held. Charles Crocker ran a dry-goods establishment down the street. Leland Stanford was a wholesale grocer with political ambitions. These four men knew they could always forfeit the first payment on their subscriptions. And, of course, they wanted to be in on the picture if the federal government really decided to finance the road. Consequently, when Judah started back to Washington in October, 1861, he was the official representative of a new Central Pacific Railroad Company.

This successor to the Dutch Flat project was incorporated on June 28, 1861, with a capital of $8,500,000. Its president was Leland Stanford, recently elected Governor of California. Collis P. Huntington was made vice-president. Mark Hopkins was elected treasurer. James Bailey, a Sacramento jeweler, became the first secretary. Charles Crocker, close friend of the new officials, was put on the board of directors. So, too, was Lucius Booth, another Sacramento merchant. Judah, of course, was named chief engineer. This was the organization approved by Congress less than a year later and authorized to build the western end of a line to the Pacific. When President Lincoln signed the bill on July 1, 1862, the

American Government stood back of a project that had been born in a Dutch Flat drugstore.

San Francisco's humorists found rich food for mirth in the news that a coterie of Sacramento shopkeepers proposed to build a transcontinental railroad. Bankers in the California metropolis felt it their duty to warn Eastern capitalists against becoming involved in so insane an undertaking. They nodded approval in 1864 when Congress limited the construction of the road to a point not more than 150 miles east of the California-Nevada line. They opened their eyes when Collis P. Huntington hurried to Washington in 1866 and had that limit removed —"without spending a single dollar to change the vote," as Mr. Huntington very carefully pointed out. And they sat up and took notice when the Washington government accepted the Sacramento contention that the Sierra Nevada Mountains really began at Arcade Creek. This meant a mere addition of $16,000 a mile for the long stretch of roadbed between the heart of a valley and the foothills of a distant range. San Francisco had heard of the faith that moves mountains. Here was a practical demonstration. And that amazing shift of the Sierras across the lowlands to the edge of a tiny stream added a cool half million to the bank balances of those Sacramento shopkeepers.

It is entirely possible, as San Francisco afterward claimed, that the Sacramento promoters organized the Central Pacific Company with no idea of committing themselves to the building of a transcontinental railroad, but merely sought a rail connection with a wagon road through the mountains over which they could transport their wares to the Nevada mines. As they got deeper into the undertaking, however, they began to see dazzling money-making possibilities. They organized the Central Pacific Construction Company and split the stock between themselves. Then, as directors of the railroad, they awarded themselves, as stockholders in the new company, building contracts on which they could not fail to make big profits. For example, there was that flat-country roadbed east of Arcade Creek which they transmuted into a foothills job. The government would pay them $32,000 a mile for this stretch of track and permit them to put another $32,000 a mile ahead of the federal mortgage. A net total of $64,000 a mile through the valley meant that there was "gold in them foothills."

Some concessions to appearances were made. Charles Crocker resigned from the Central Pacific Railroad board to become the active head of the construction company. Nevertheless, Judah fought the new arrangement, just as he had opposed the moving of a mountain to the middle of a valley. He flinched when he heard his great undertaking described as "the Dutch Flat swindle." Finally, he withdrew from the picture. He told his intimate friends he had an option on all the Sacramento stock and was going East to have control of the road taken over by New York and Boston interests. That plan was never put into effect. The thirty-seven-year-old engineer contracted yellow fever while crossing the Isthmus of Panama and died on November 2, 1863, a few days after his boat docked in New York.

This ended all talk about responsibility for building the Central Pacific. Crocker took charge of construction and developed into a driving genius. Huntington went East and sold bonds on which he and his associates guaranteed the payment of interest by pledging everything they owned in Sacramento. The cost of material and transportation was appalling. Congress had specified that the track must be laid with American-made rails. This forced the builders to place their orders in Northern factories which were swamped with requisitions for war material, and to ship the finished products in vessels which were compelled to run a rigid blockade maintained by Confederate cruisers. Eight to ten months were required for these runs to San Francisco Bay via Cape Horn. Ocean transportation rates and marine insurance rose to fantastic figures. Freight charges alone on the first locomotive bought by the Central Pacific totaled more than $2,300. Before the end of the Civil War this cost climbed above $8,000. Rails shipped via the Panama route paid $50 a ton for the shorter trip. Nevertheless, Huntington kept the supplies moving at top speed to Crocker. He did so in spite of every effort by telegraph, steamship, stage and express companies to obstruct the building of the road.

Labor, not material, was Crocker's big problem. Few workmen felt disposed to shovel dirt for the Central Pacific when gold could be had for far less tedious digging along the streams of California. One stampede to a new discovery of yellow metal took 1,900 workers from Crocker's construction camps. That left him just an even 100 of the 2,000 men who had received transportation from distant points in exchange for their written promises to work on the railroad. Crocker's brother and President Stanford suggested Chinese labor. J. H. Strobridge, superintendent of construction, scoffed at the idea. This building of the Central Pacific was a he-man's job, he said, not a task for lightweight, yellow rice-eaters.

Charley Crocker disagreed.

"Well," he observed, "those same rice-eaters built the Great Wall of China. I guess they can dig grades for an American railroad."

His guess was accurate. The first gang of fifty Chinese, picked up in San Francisco, took to the new life with nonchalant self-possession. They were impressed by the combination of $30 a month and keep. When they arrived on the firing line late one afternoon they made camp, prepared a banquet of rice and dried fish and cold tea and called it a night. Next morning the rising sun found them hard at work. At the end of twelve hours of back-breaking toil they were still placid, apparently as fresh as ever, and could show results that shamed their white coworkers. That first day's demonstration settled the Central Pacific's labor problem. The first fifty Orientals were soon followed by two thousand. When the possibilities of San Francisco's Chinatown were exhausted, Crocker began importing coolies across the Pacific. Ten thousand additional followers of Confucius yielded to the lure of California gold before the Central Pacific's Celestials encountered the Union Pacific's Irish army on the banks of the Great Salt Lake in the spring of '69.

The building of the Central Pacific became a three-cornered race. Huntington, in the East, was determined to keep supplies moving through the Golden Gate faster than the Chinese could use them in the heights of the Sierras. Crocker was equally ambitious to push his roadbed well ahead of the ties and rails and equipment. And both men, of course, were out to beat the pace of the Union Pacific. Leland Stanford had turned the first spadeful of dirt in the capital of California on January 8, 1863. The first line of track was laid nine months later, when the first ship chartered by the Central Pacific ended its long trip around the Horn and unloaded the first supply of iron rails on a Sacramento wharf. The first section of road, 18 miles long, was completed at Roseville on February 29, 1864. Less than a year and a half later three trains a day were running to Colfax, formerly Illinoistown. The Central Pacific rails reached Dutch Flat in July, 1866. By the end of the year trains were operating on a regular schedule to Cisco, 94 miles east of Sacramento and nearly 6,000 feet above sea level. This trip from the California capital to the new eastern terminus was made in 5½ hours and at a cost to passengers of a little less than $10 a ticket.

Crocker's troubles really began at Cisco. The next 14 miles would take him to the summit of the Sierras, but rails must be laid in tunnels driven through solid granite. Some help was obtained from a Swedish chemist who had invented a powerful explosive which he called nitroglycerine, and manufactured in proper quantities as and where it was needed. Summit Tunnel, a quarter of a mile long, was dug at a rate of only a few inches a day. The directors in Sacramento, alarmed by the building speed the Union Pacific was setting, suggested the use of the recently invented steam drill. Crocker and Strobridge sneered at so radical a departure from precedent and, instead, sent their pick- and chisel-armed Chinese gangs against the rock in day and night shifts. After a year of hard work the coolies finished the tunnel in the fall of 1867 and started down the eastern slope of the mountains. There was a desert in front of them, but there was also an opportunity to make up lost time.

Only 40 miles of track were laid in 1867. There were 500 miles ahead if the Central Pacific hoped to save the valuable Mormon Valley from the rush of a rival road.

"If you give me the material," said the commander in chief of the Chinese coolies, "I'll build a mile a day."

And that is precisely what Charley Crocker did in 1868.

CHAPTER XIII

“Drill, You Terriers, Drill!”

Three Sioux chiefs in full fighting paraphernalia rode to the top of the ridge and peered into the east. It was a cloudless spring morning and moving objects, even at a great distance, were clearly visible. These heads of a determined war party sat quietly on their ponies while sharp-eyed members of their band studied the horizon beyond a long stretch of prairie. Presently an exclamation of satisfaction was uttered. One of the scouts had seen a faint trace of smoke. After a patient wait the producer of that telltale evidence crept into the line of vision. It was a long, slow-moving train on the new Union Pacific, headed for a construction camp at the temporary western end of the line. The leader of the Sioux raised his hand in a signal and drove his pinto down the ridge. The time had come to stop this menace to free life on the plains. Redskin strategy had found a way at last to checkmate the devilish paleface device which, with loud screams and snorts and puffs of white vapor, was driving the buffalo from their favorite grazing grounds.

The Sioux plot was exceedingly simple. Every wise counselor of the war party had voiced his approval of the plan. The place selected for the ambush was ideal. Rolling ground and cottonwood trees would screen their preparations from any lookout aboard the oncoming train. Sixty of the strongest members of the party were placed in position, thirty on either side of the two lines of rail. With feet braced against the grass-matted sod and hands guarded from slipping by double knots, they leaned back and stretched into a rigid line across the track a long, heavy, specially woven horsehair lariat. When the rushing monster hit this barrier it was only a question of how many scalps would adorn their belts that night. Also, what was more important, there would be an end of the white man's stupid attempts to build a new and unneeded path along the Valley of the Platte toward the land of the setting sun.

The man in the cab of the westbound engine was a singularly skeptical individual. As his swaying train rounded the bend and picked up speed for the long, straight run ahead, the Sioux ambuscade was revealed to his alert eyes. He saw the lariat stretched across his right-of-way, but he did not whistle for brakes. Instead, and with a deplorable lack of faith in the merit of the redskin plot, he pulled the throttle wide open. A few minutes later his heavy, fifteen-car train hit the horsehair barrier at a speed not far from fifty miles an hour. The roaring monster on which he rode did not roll from the rails when the full weight of sixty determined warriors met the momentum the power of steam had created. The locomotive merely moved faster into the west while a festoon of Sioux strategists was strung along two sides of the train, where they lingered only briefly before executing exceedingly humiliating nose dives into the soil of Nebraska.

This amazing climax to a carefully thought-out plan apparently annoyed the Sioux. Instead of retiring into their tents to sulk, they cast about to find a method of registering their irritation. Their second activity was more successful than the first. Late that evening, while staging a flying raid on a railroad camp, they were lucky enough to capture a white man. Retreating just beyond the reach of bullets, they staked their captive out flat on the ground and settled down to a favorite pastime. The night was chilly and long. A tiny open fire, fed with buffalo chips, was built on their prisoner's breast. For three hours, they warmed their hands above the blaze while they gloated over details of the delayed death they were dealing to one of the hated race that had ruined their plan to end the Union Pacific. The screams of agony from the object of their torture fell pleasantly on their ears. These same cries were heard with different emotions by the handful of railroad workers huddled behind a temporary barricade. The listening white men were helpless. They could only put their hands over their ears or rise in a rage from time to time to fire futile shots at the redskin celebration just beyond range of their rifles.

The Sioux fought fiercely to stop the building of a railroad. They attacked small outposts or big construction camps with equal fury. The learned to throw ties, instead of lariats, across the rails. They matched their ponies against locomotives in running fights with railroad workers on moving trains. Surveying parties ahead of the Union Pacific construction gangs were always heavily armed, but they required special guards of soldiers under the command of officers experienced in frontier warfare to protect their scalps when they worked their way into hostile territory. Graders and track-layers dropped spades and sledges and picked up rifles with the precision and promptness of trained soldiers when lookouts flashed word that an Indian attack was at hand.

The results of these battles were disappointing to both sides. The redskin losses, due to the speed of their maneuvers, were fairly light in comparison with the damage and expense they inflicted on the Union Pacific Railroad and the United States Army. One statistician of the period calculated with eloquent regret that it cost approximately $100,000 a head for the Indians actually killed. As against this, and notwithstanding the hundreds of white scalps they took, the red men reluctantly realized that their occasional triumphs were hollow victories. In spite of their utmost efforts, the railroad still worked its way into the West.

On one occasion, long before actual construction was begun, the defenders of the soil unwittingly aided the forward thrust of the right-of-way. After the battle of Atlanta, General Dodge was assigned to the Department of the Missouri and was charged with responsibility for the Indian campaigns of 1865 and 1866. It is possible that he sensed the future and foresaw the problems he must meet three years later as chief engineer of the Union Pacific. In any event, when chasing Indians he always kept a calculating eye on the topography of the country.

While returning in 1865 from a campaign along the

Powder River he staged a swift exploration of passes through the Black Hills south of Fort Laramie. This was the section through which no surveyor had found a practical route for a railroad. The General, accompanied by six mounted troopers, rode to the summit of a pass overlooking the present city of Cheyenne. Apparently the outlook was hopeless. As they turned back at noon the little party saw Indians just ahead and, simultaneously, the redskins saw them. Dodge and his escort rode top speed for a ridge from which they could send up smoke signals to catch the eyes of the troops below. When they reached this vantage point they dismounted and held the Indians off with Winchesters while they built their fires. It was nearly night before their appeals for help were seen and answered.

When the cavalry came to their rescue and the Indians had retired, General Dodge led his command down to the plains. He had saved his scalp, but it was not the realization of this fact that monopolized his thoughts. What really interested him was the discovery that the elevation along which he had fought the Indians led down without a break from pass to prairie. Dodge had stumbled on the secret so long sought by every surveyor. Today, the Union Pacific's main line rises easily to Sherman Pass, more than 8,000 feet above sea level, along the ridge the Indians compelled Dodge and his men to ride in their race for life. This incident should have been scored by the Sioux as the worst break of luck they went up against in the losing game they played to stop the Union Pacific.

When General Dodge took charge of construction on May 1, 1866, the work of building the railroad seemed an almost impossible task. Fifteen thousand Indian braves were disputing every foot of the right-of-way. There was no real base of supplies. All material had to be brought up the Missouri River, which was open for navigation only a few months in the year, or hauled in wagons across the plains. The only trees found in the valley of the Platte were cottonwood. Ties made from their trunks had to be treated with chemicals, and then were unsatisfactory. Suitable ties, brought from a great distance, cost $2.50 each by the time they were laid in position. Labor was scarce and the credit of the road was so poor that the workers demanded and received their day's wages each morning before lifting a tool. And even the water they drank had to be hauled hundreds of miles. In the face of these handicaps it was really remarkable that the new road was open for traffic as far west as North Platte, Nebraska, in November, 1866.

The picture changed swiftly after Dodge took command. Lee's surrender at Appomattox on April 9, 1865, had released Civil War veterans for peace-time avocations. Thousands of ex-soldiers, mostly Irish, drifted west in 1866 and accepted jobs on the Union Pacific. In December of this year the old Mississippi & Missouri, now the Chicago & North Western Railroad, worked its way into Council Bluffs and began moving supplies for the new transcontinental road. Oakes and Oliver Ames were in charge of financing and were honest in their fight to build a line to the Pacific. Also, there were now available men of the highest type to lead the mobilization of Union Pacific workers.

One of these was General John Stevens Casement, better known as Jack Casement, who took command of the track-layers and whipped them into the best-trained and fastest railroad army in history. Most of his men were Irish. They fought or worked in an unceasingly good-natured mood. Their battle cry for either activity was:

"Drill, my paddies, drill!
Drill, you terriers, drill!
Oh, it's work all day,
No sugar in your tay,
Workin' on th' U. Pay Ra-ailway!"

A vivid pen picture of Union Pacific track-laying by Jack Casement and his wild Irish workers was contributed to history nearly three-quarters of a century ago by a writer for the *Fortnightly Review.*

Here is his description:

"We pundits of the far east stood upon an embankment, only about a thousand miles this side of sunset, and backed westward before the hurrying corps of sturdy operators with a mingled feeling of amusement, curiosity and profound respect. On they came. A light car, drawn by a single horse, gallops up to the front with its load of rails. Two men seize the end of a rail and start forward, the rest of the gang taking hold by twos, until it is clear of the car. They come forward at a run. At the word of command the rail is dropped in its place, right side up with care, while the same process goes on at the other side of the car. Less than thirty seconds to a rail for each gang, so four rails go down to the minute. Quick work, you say, but the fellows on the Union Pacific are tremendously in earnest. The moment the car is empty it is tipped over on the side of the track to let the next loaded car pass it, and then it is tipped back again; and it is a sight to see it go flying back for another load, propelled by a horse at full gallop at the end of 60 or 80 feet of rope, ridden by a young Jehu, who drives furiously. Close behind the first gang come the gangers, spikers and bolters, and a lively time they make of it. It is a grand anvil chorus that these sturdy sledges are playing across the plains; it is triple time, three strokes to the spike. There are ten spikes to a rail, 400 rails to a mile, 1,800 miles to San Francisco—twenty-one million times are those sledges to be slung; twenty-one million times are they to come down with their sharp punctuation before the great work of modern America is complete."

Casement's terriers were versatile artists. They drove shovels into a right-of-way or threw rifle bullets against an Indian attack with equal nonchalance. They dug grades or graves with comparable skill. The Civil War had made most of them trained soldiers, and the Union Pacific developed their natural talents as policemen. When the underworld element along the new transcontinental line got out of control, Casement's men took charge. They cleaned up the canvas communities and created beyond temporary city limits adequate cemeteries for the final repose of the bad men who disputed Union Pacific authority.

The hells-on-wheels that trailed Jack Casement's army became increasingly lawless as the rails ran west. North

Platte, reached in November of 1866, was a comparatively respectable construction camp. So, too, were Julesburg, Colorado, and Cheyenne, Wyoming, which the Union Pacific reached in June and September of the following year. By this time rail connections with the East had been established by the Chicago & North Western, and visitors from the West Coast were brought within striking distance by Central Pacific trains. As a consequence, the last of the temporary towns developed a taste for debauchery that led to spectacular achievements. Laramie was bad enough, but Benton, nearly 700 miles west of Omaha, named for the Missouri senator who blocked the plans of Asa C. Whitney, became the Queen City of the Hades circuit.

The Union Pacific tapped Benton in August, 1868. Almost overnight, a new city of tents blossomed into a metropolis of vice. A municipal government, headed by a mayor, was elected to office. One daily newspaper, five dance halls and twenty-three saloons began going top speed. The most imposing business enterprise in the heart of the city was "The Big Tent," a canvas-covered emporium that specialized in alcoholic beverages and so-called games of chance. Brass bands, operating day and night shifts, attracted cash customers to this 4,000-square-foot mart of trade. Faro, roulette, poker, monte and chuck-a-luck games were available at all hours and for any stakes. A garish magohany and plate-glass bar, 100 feet long, specially imported from St. Louis, occupied the position of honor across the middle of the tent. Since the street in front was merely a bed of alkali dust, almost a full foot deep, the half-strangled customers who fought their way through white clouds into this delectable oasis proved highly profitable patrons.

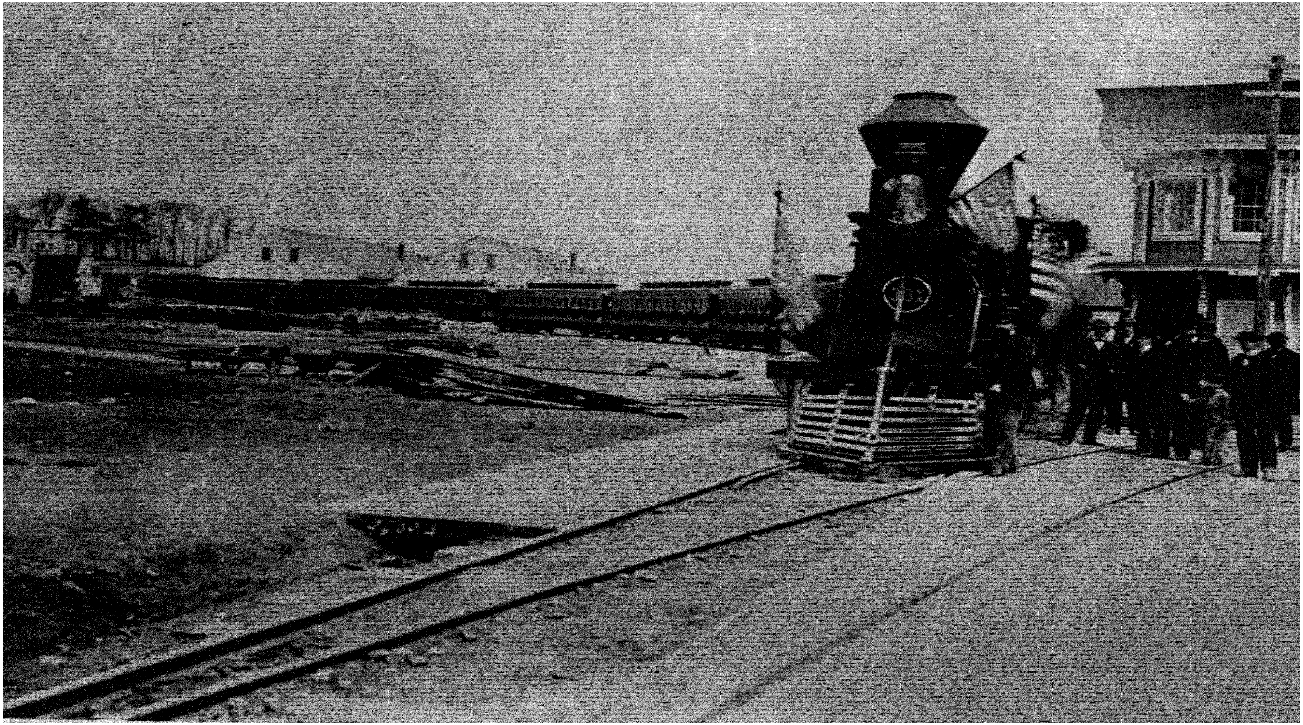
The leading citizens of Benton were the ladies who operated the best-equipped bagnios or the gentlemen who proffered the most imposing devices for games of chance. Local aristocracy ranged from black frock-coated professional gamblers with derringers up their sleeves to Union Pacific laborers who shoveled shallow graves for victims of the strenuous night life. There were two long, heavy trains a day through Benton's bustling railway station and a higher percentage of murders to clutter up the city's vital statistics. Life was frequently brief in this last of the great hells-on-wheels, but it never became entirely monotonous. Yet the uproar ceased as dramatically as it began. When the Union Pacific reached Wasatch, near the end of its run to Ogden, the city called Benton died in a night. Special trains conveyed the surviving citizens to their final stand on the Union Pacific right-of-way, and thick layers of alkali dust blotted out the underground homes of the more peaceful dead they left behind.

The last lap of the race between the Union Pacific and Central Pacific, staged in the second half of 1868 and the first four months of 1869, became an American saga. General Dodge counted heavily on Mormon help for the grading of his railroad through Wyoming and Utah. Brigham Young, head of the church, withdrew his aid when the Union Pacific surveyors sidestepped Salt Lake City and took their line north of Great Salt Lake.

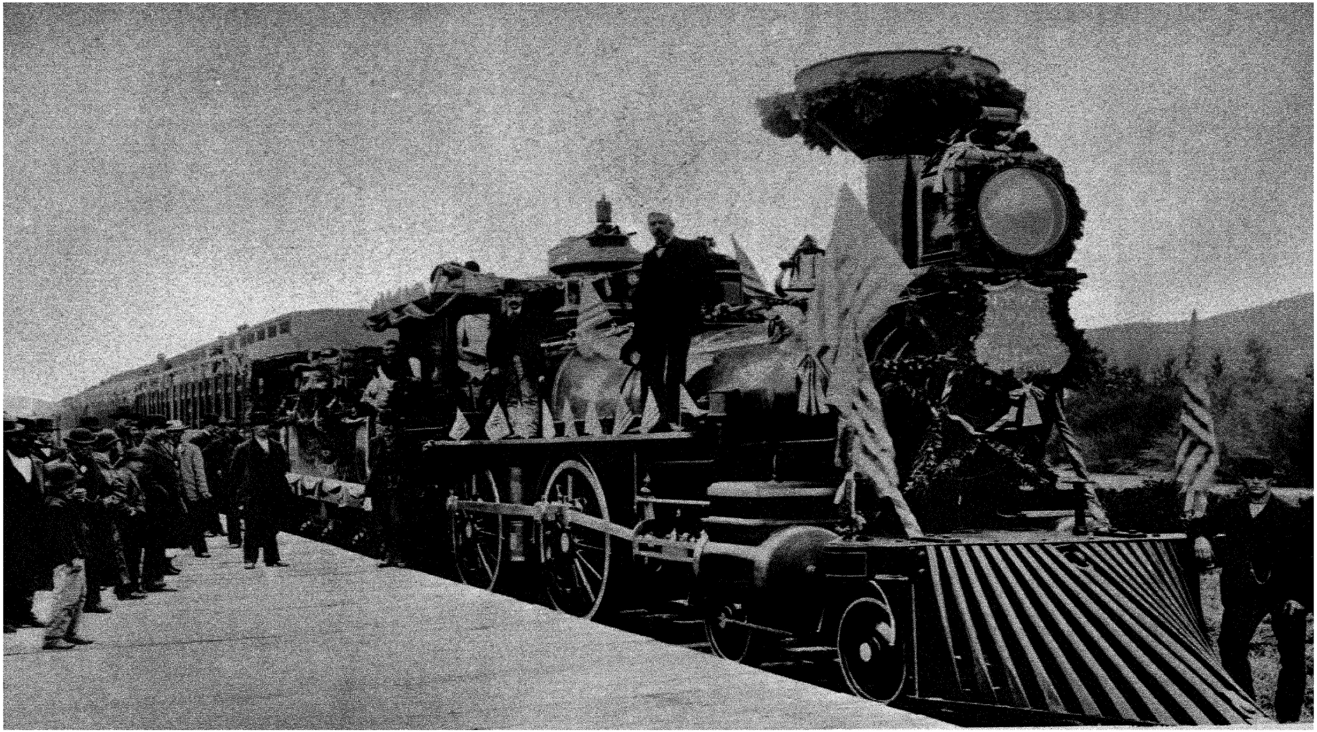
He was prepared to throw the full strength of his following into the Central Pacific cause. This, of course, would have given the line from the west an easy victory in its rush to capture the valuable territory east of Ogden. But, when Central Pacific surveyors endorsed the reports of their rival engineers and voted against a southern route, the High Priest of the Latter Day Saints returned to his first love and ordered his wagons and workers back to the Union Pacific roadbed.

This struggle between the competing railroads became the outstanding sporting event of seventy years ago. Daily newspapers carried the score as a front-page feature. Standing box displays told Eastern readers each morning how many miles of track the Union Pacific had built in the previous twenty-four hours. From one to two miles was the average in 1868. With the end in sight, new records were set. Jack Casement's Irish laid six miles of rails within the limits of one spring day in 1869. Charley Crocker's Chinese saw this achievement and raised it a mile. Whereupon the Union Pacific experts laid seven and a half miles between sunrise and sunset. Crocker came back with the statement that he could lay ten miles of rails in a single working day. Vice-President Durant of the Union Pacific offered to bet $10,000 that he could not. Central Pacific officials covered the wager and announced that the stunt would be staged on April 29, 1869.

When the appointed date arrived a large gathering of celebrities was on hand to see a world's record created. The Chinese army, trained to the precision of machines



President Lincoln's funeral train arriving in West Philadelphia at 6:30 P.M., April 22, 1865.



The first train over Northern Pacific rails between St. Paul and Portland in 1883.

by four years of active experience, tackled the job at the stroke of 7 A.M. They did not take on the actual laying of heavy rails. That task, a bit too heavy for their slender arms and legs, was entrusted to eight powerfully built sons of Erin. This Irish octette deserves a permanent place in history. Its members were Pat Joyce, Mike Kennedy, Tom Daly, Ed Killeen, Mike Sullivan, George Wyatt, Fred McNamara and Mike Shay. Aided at every inch by their excited Chinese allies, the little handful of Central Pacific Celts laid rails at the rate of 240 feet every 107 seconds. This gave them a score of 8 miles of track in the first six hours of the race. They appropriated a full hour for lunch and practically loafed through the afternoon. At 7 P.M. they were several hundred feet over the ten-mile requisite. Crocker's crack army had moved more than four and a third million pounds of material in less than eleven hours. They had placed 25,800 ties in position and strung 3,520 rails weighing nearly 600 pounds each. As incidental details, they had handled more than 7,000 plates, 14,000 bolts and 55,000 spikes.

Durant paid his bet. It was too late for a comeback. Crocker had postponed his exhibition with calculated cunning. The two roadbeds were close to a meeting point. There was no longer in existence a ten-mile vacancy for unlaid rails. That is why Casement's men accepted defeat. It is also one reason why the Central Pacific accomplishment is still a world's record.

When the Chinese and Irish vanguards met near Promontory Point, Utah, in the spring of '69, the momentum of the race had carried the rival engineering forces far beyond the point of contact. The Central Pacific had thrown up a grade approximately 80 miles to the east of Promontory Point, and the Union Pacific was built even farther west at a cost of more than $1,000,000 for a roadbed it could not use. Both camps claimed everything in sight and both insisted that priority of preliminary construction work entitled them to lay the last rails from Ogden to Promontory Point. Congress felt compelled to take a hand in the battle, but before any ruling was laid down the rival roads reached a compromise. This arrangement was approved April 10, 1869, by a joint House and Senate resolution which provided: "That the common terminus of the Union Pacific and the Central Pacific railroads shall be at or near Ogden; and the Union Pacific Railroad Company shall build, and the Central Pacific Railroad Company pay for and own, the railroad for the terminus aforesaid to Promontory Summit, at which point the rails shall meet and connect and form one continuous line."

Just one month later, on May 10, 1869, the Governor of California, Leland Stanford, who was also President of the Central Pacific, arrived from the west with a large party of distinguished guests. He was met at Promontory Point by a train from the east, bearing Vice-President Durant, of the Union Pacific, two of that new road's directors, various distinguished Easterners and a delegation of Latter Day Saints from Mormon headquarters in Salt Lake City. These dignitaries were surrounded by Indians, Chinese, Mexicans, Irish, Negroes, regular army soldiers from Fort Douglas, black-clad gamblers from the

Mississippi River, rough-riding cowboys from the plains and innumerable other picturesque representatives of every social stratum, lured by a common interest in this historic meeting of East and West.

Workmen from both camps laid ties in the open space between the ends of the Union Pacific and Central Pacific lines. Oriental laborers from California laid the rails at the western end while Irish graduates of Ellis Island advanced from the east to meet them. The time to drive the last spike had come. The territory of Nevada contributed a spike of silver for this historic ceremony and her sister territory of Arizona matched it with one of iron, silver and gold. But the actual last spike, driven with a silver sledge by Stanford and Durant, was California's contribution. It was made of pure gold.

The driving of that last spike was flashed to every important city of the nation. Telegraph wires from coast to coast were silenced as Leland Stanford swung aloft a silver sledge. Three dots of the telegraph instruments echoed the first blow. And then the single word "Done" started a nation-wide tumult, from joyous San Francisco to the eastern borders of New England. President Grant received the message in the White House. Chicago staged a parade four miles long. The old Liberty Bell rang out from Independence Hall in Philadelphia. The *Te Deum* was sung in New York's famous Trinity Church. The metropolis of California could not wait for the actual ceremony, but organized the night before a colorful celebration that lasted two days. From coast to coast, America exulted over the completion of her first transcontinental line.

Merely for the record, it should be added that an alert telegraph operator and an even more enterprising San Francisco jeweler played unsung roles in the ceremony so eloquently described by Bret Harte in his rhymed story of the meeting of the engines. The wires which connected the silver sledge and golden spike, and which were supposed to flash word to the world that the rails were wed, did not perform according to carefully worked-out plans and specifications. A Morse operator rose to the occasion and faked with wired dots the final blows of a titanic task. The West Coast jeweler, aware that the railroads intended to salvage California's golden spike, did a land-office business with credulous victims. He booked orders and down payments for a limited supply of scarf pins to be manufactured from the last link of the transcontinental line. These minor incidents, fortunately, did not distract attention from the main event. A nation thrilled when the Union Pacific's locomotive No. 116 and the Central Pacific's *Jupiter* kissed noses at Promontory Point.

CHAPTER XIV

BABY BONDS AND A BLIND POOL

THE HEAD OF THE HOUSE was occupying the limelight and thoroughly enjoying the roar of activities. It was Saturday morning, May 13, 1865, the last day of the most successful week in his fight to put over a Victory Loan for the Washington government. Thirty millions would be subscribed in these final hours of a six days' drive that netted close to a hundred million dollars. It was not the steady local distribution that interested Jay Cooke. He was keeping tabs on the small towns throughout the nation and reading with mounting satisfaction the terse bulletins handed to him by an unending parade of messenger boys from a near-by telegraph office.

"Keokuk takes twenty thousand," the banker called out to a group of admiring auditors. "So, too, does Des Moines. Lafayette is up to ten on the day. Little McConnellsville, Ohio, has gone above twenty, nearly all in fifties and hundreds. Lowell, Massachusetts, is well over seventeen thousand. Good! That's from the factory girls."

Philadelphia was proud of its famous banker in the period of reconstruction that followed Lee's surrender at Appomattox. Between January and July of 1865 he collected the amazing sum of $820,000,000 for a crippled government almost hopelessly exhausted by four long years of civil war. Jay Cooke & Company's modest offices occupied merely moderate space in the brownstone building at 114 South Third Street—the "first door above the Girard Bank" as all the firm's advertising carefully stressed. Yet this unpretentious suite was headquarters for a financial organization which dictated terms to four or five thousand selling agents and originated modern American underwriting methods. All our Liberty Loan campaigns in the first world war followed plans devised in Philadelphia more than half a century before. It was Jay Cooke who introduced the door-to-door security salesman, the pegged market and the baby bond.

It was this pioneer banking house, also, which first demonstrated the real possibilities of publicity in a security selling campaign. Jay Cooke spent money recklessly on newspaper advertising. He paid high rates, but he demanded help from the editorial departments. This strategy, as a rule, succeeded. The press, with few exceptions, rallied behind his drives. Occasionally, of course, readers of the so-called Copperhead journals of the day saw, side by side, slashing attacks on Washington government finances and Jay Cooke's displays which told them why United States government bonds were safe and profitable investments.

Cities, towns and countryside were billed like a circus. The Jay Cooke posters juggled a queer blend of Victory Loan propaganda and popular songs of the Civil War. Financial "Questions and Answers" and monetary "Facts and Figures" were offset with verses from "John Brown's Body," "We Are Coming, Father Abraham" and "Johnnie Is Gone for a Soldier." Jay Cooke's salesmen, from high-pressure stars down to youngsters working for $50 a month, covered the country like the proverbial dew. "Seven-thirty" bonds took the place of coin and currency in family closets. Farmers clad in homespun became owners of government I.O.U.'s worth thousands of dollars. Even soldiers at the front in the spring of 1865 were converted to the theory of thrift. When they stacked arms and lined up for their monthly pay, Jay Cooke's representatives were on hand to sell them bonds and take delivery instructions for designated heirs should these new investors happen, unfortunately, to be killed in the final battles of the War Between the States.

This was Jay Cooke's last campaign as undisputed commander of a drive in behalf of a government loan. Opposition to his monopoly was gaining strength in Congress. Up in New York a taciturn, scowling young banker was taking steps to declare himself in on the most profitable activity of the day. By the time Jay Cooke was swept into the whirl of railroad activities, J. Pierpont Morgan had come to the front.

The original backers of the Union Pacific realized the potentialities of the Jay Cooke selling machine and tried repeatedly to interest the Philadelphia banker in America's first transcontinental railroad. Had he listened to their arguments, the firm which carried his name undoubtedly would have blocked the rise of the Morgans, the Drexels, the Speyers, the Seligmans and other houses that became powerful railroad underwriters. Jay Cooke, however, was an intensely religious man. He was in no mood to consider private financial problems when Congress authorized a road to the West. He believed, sincerely, that a divine Providence had selected Abraham Lincoln and himself to save the Union, and that it was his part of the job to supply the money required by the man in the White House.

The Philadelphia banker must have recalled with regret the Union Pacific offers when the Treasury Department in Washington, ignoring his Civil War record, turned a friendly face to other bankers. In any event, after much hesitation in the closing months of 1869 he reluctantly decided to test the possibilities of railroad financing. Against the advice of his more conservative partners, he threw his big organization behind a project which was born in the brain of Thomas Jefferson, which was aided more than half a century later by Abraham Lincoln and which ultimately became a target for government prosecution directed by Theodore Roosevelt. On February 15, 1870, with Jay Cooke on the firing line, ground was broken for the Northern Pacific Railroad, the biggest private business venture in early American history.

The genesis of the Northern Pacific really dates back to the middle of the seventeenth century when two French traders, Radisson and Groseilliers, blazed a trail to the West through what is now the state of Minnesota. They were followed about twenty years later by Father Louis Hennepin, Flemish missionary, and the Sieur Duluth (or Dulhut), for whom the city of Duluth was named. The glowing reports of these voyageurs on the possibilities of the country inspired the French explorer, Varendrye, to follow their steps, extend their surveys and add a territory that now covers the Dakotas to the vast North American domain already under the flag of France. More than a hundred years later Alexander McKenzie, of the Northwest Fur Company, made an overland trip from Montreal to the Pacific Ocean and thus became the first white man to cross the continent on a line north of the Mexican border. His pioneer work inspired the expeditions led by Zebulon M. Pike, Lewis Cass, Stephen H. Long and Henry Rowe Schoolcraft.

All these early activities encouraged the subsequent conviction that America's first transcontinental railroad would be built into the vast Northwest. In the first decade of the nineteenth century Thomas Jefferson, then President of the United States, predicted the eventual creation of a traffic line from the shores of the Great Lakes to salt water in the West. He persuaded Congress to provide funds "for sending an exploring party to trace the Missouri to its source, to cross the Highlands, and follow the best water communication which offered thence to the Pacific Ocean." When the money became available he appointed his secretary, Meriwether Lewis, as chief of this expedition, and Lewis chose his good friend, William Clark, as first lieutenant. The information obtained and recorded by the Lewis and Clark Expedition, which reached the mouth of the Columbia River, was the foundation for the Northern Pacific project.

Under normal conditions, or possibly in the brief period of enthusiasm which followed the completion of the first transcontinental railroad, it is extremely likely that an adaptation of the Jay Cooke bond-selling methods would have built the Northern Pacific. In the vernacular of the Street, the banker missed his market. His efforts to interest English, German and Dutch dealers in a distribution of Northern Pacific securities elicited cold refusals. The fate of the financing rested on the ability of Jay Cooke & Co. to place all the bonds in the American market. It was a discouraging prospect, but the man from Philadelphia plunged into the adventure with his fortune and his future in his hands.

His campaign deserved a better fate. It was, unquestionably, the most picturesque one he ever staged. He flooded the nation with colorful literature in behalf of Northern Pacific bonds. His circulars presented vivid pen pictures of the "immense crops of grain, fruit and vegetables" which could be grown in the Northwest, stressed the "richest mineral deposits in this continent," mentioned "materials for the greatest lumber trade the world has ever seen," described a "wonderful network of brooks, lakes, streams and navigable rivers" and cited really convincing facts and figures about a domain capable of producing yields of "wheat, barley, rye, oats and potatoes larger than any other land in the world." When Jay Cooke & Co. went to the wall these circulars were denounced as gross misrepresentations to ensnare credulous victims. A careful study of their text, aided by cold statistics available today, compels the conclusion that Jay Cooke was reasonably moderate in most of the claims he made in behalf of the area afterward traversed by the Northern Pacific.

Actual construction of the new line was begun in upper Minnesota in the summer of 1870. About 450 miles had been built when the panic of 1873 wiped out Jay Cooke & Co. and plunged their rail undertaking into hopeless bankruptcy. General Lewis Cass, who had been the president of the road, was appointed receiver. He was followed by Charles B. Wright and Frederic Billings. And then along came one of the most remarkable railroad personalities developed in the final quarter of the nineteenth century.

Henry Villard, the man who completed the job which Jay Cooke had begun, was born in Germany seven years after Charles Carroll of Carrollton broke ground for the B. & O. His real name was Ferdinand Heinrich Gustav Hilgard. He was educated at a French military academy in Phalsbourg and at the universities of Munich and Würzburg. In 1853, at the age of eighteen, he quarreled with his father and ran away to America, choosing for use in a New World the name of Henry Villard. He began life on this side of the Atlantic as a newspaperman and worked his way swiftly from German-American publications to the *Cincinnati Commercial*, the *New York Tribune* and *Frank Leslie's Weekly*. He reported the Lincoln-Douglas debates in 1858 and the Republican National Convention of 1860 which nominated Lincoln for the presidency. He was a Civil War correspondent for the *New York Tribune*, became Washington correspondent for the *Chicago Tribune* in 1865, and in the following year was detailed to the Prusso-Austrian War. In 1871, at the age of thirty-six and with the valuable background of eighteen years as a reporter and editor, he became interested in railway financing. His baptism of fire in this strenuous avocation plunged him into the exact center of a transportation war on the Pacific Coast which played a vital part in the future history of three transcontinental railroads.

Early in the 1850's a tiny village, for obvious reasons called Portland, was established on the Willamette River near its confluence with the Columbia. Located 100 miles inland and more than 2,000 miles from the nearest railroad, its commerce with the outer world was handicapped by a channel to the sea which made trips for vessels drawing more than 10 feet a hazardous undertaking, and by a "wild and tempestuous bar" at the mouth of the Columbia River. The normal depth of water over this bar was 20 feet. As a consequence, insurance and freight charges in and out of Portland were far higher than the rates to Puget Sound, Washington, where high banks and deep water provided a wonderful natural harbor. Nevertheless, Portland's pioneer citizens laid plans to humiliate their northern rival in the fight to exploit trade possibilities of a marvelous inland empire between the Cascade Mountains and the Mississippi River.

Mail service to Oregon via San Francisco was begun in 1851 by the Pacific Mail Steamship Company, supplemented later by the overland stage and the pony express. In 1859 steamers began to operate between Portland and the cascades of the upper Columbia. In 1862 the Oregon Steam Navigation Company was organized and swiftly acquired a monopoly on trade with the inland empire. This attracted the attention of a coterie of Californians. A company was formed to build a line to the Columbia River along the eastern bank of the Willamette. Portland viewed these activities with suspicion and countered with a plan to construct a rival road along the western bank. The Californians tried to buy the competitive right-of-way, but the Oregonians stood pat. The West Side Railroad broke ground on April 15, 1868. The East Side Company followed suit next morning. This skirmish precipitated a war which brought Ben Holladay into the front-line trenches.

Holladay was a picturesque Kentuckian. He began life as a drug clerk near Ft. Leavenworth, Kansas. He broke into the life of a trader on the old Santa Fe Trail. He built 10-inch tires for his wagons instead of the conventional 4-inch wheel rims. This enabled his outfits to beat the best time of all rivals along the route to Sante Fe. He was no piker as a frontier merchant. He bought tea at 28¢ a pound in New York, shipped it by sea and river to Ft. Leavenworth, freighted it out to the present capital of New Mexico and sold the fragrant leaves to Spanish housewives at a minimum rate of $1.50 per pound. When the gold rush to California began, he cashed heavily on sales of coffee and tea to the Mormons, butter and bacon to the forty-niners and cheap whiskey to unsophisticated Indians. He plucked from his redskin victims one glossy beaver skin for every half-pint cup of rotgut red-eye. He swelled his profits by depositing a quarter of an inch of buffalo grease at the bottom of the cup and inserting two fingers of his left hand in the tin goblet while his thirsty customers inhaled the poisonous beverage. It is not surprising, therefore, that he soon acquired the Confidence Mine in Tuolumne County, California, from which he extracted huge profits.

In 1862 Holladay advanced cash to Russell, Majors and Waddell, proprietors of the Leavenworth Stagecoach Company which operated lines to Denver and Salt Lake City and enjoyed a monopoly on overland freighting business across the plains. Two years later he owned this transportation industry. Unfriendly critics insisted that he stole it. Regardless of that contention, the new stagecoach king soon acquired literary fame. He figured in Mark Twain's story of an American youth, visiting the Holy Land, who sneered when shown the three-hundred-mile desert through which Moses led the children of Israel in approximately forty years. The lad from the States was not impressed by the Biblical story.

"Hell's blazes, that's nothing to brag about," he observed. "Ben Holladay would have jerked those birds across this sand in less than a day and a half!"

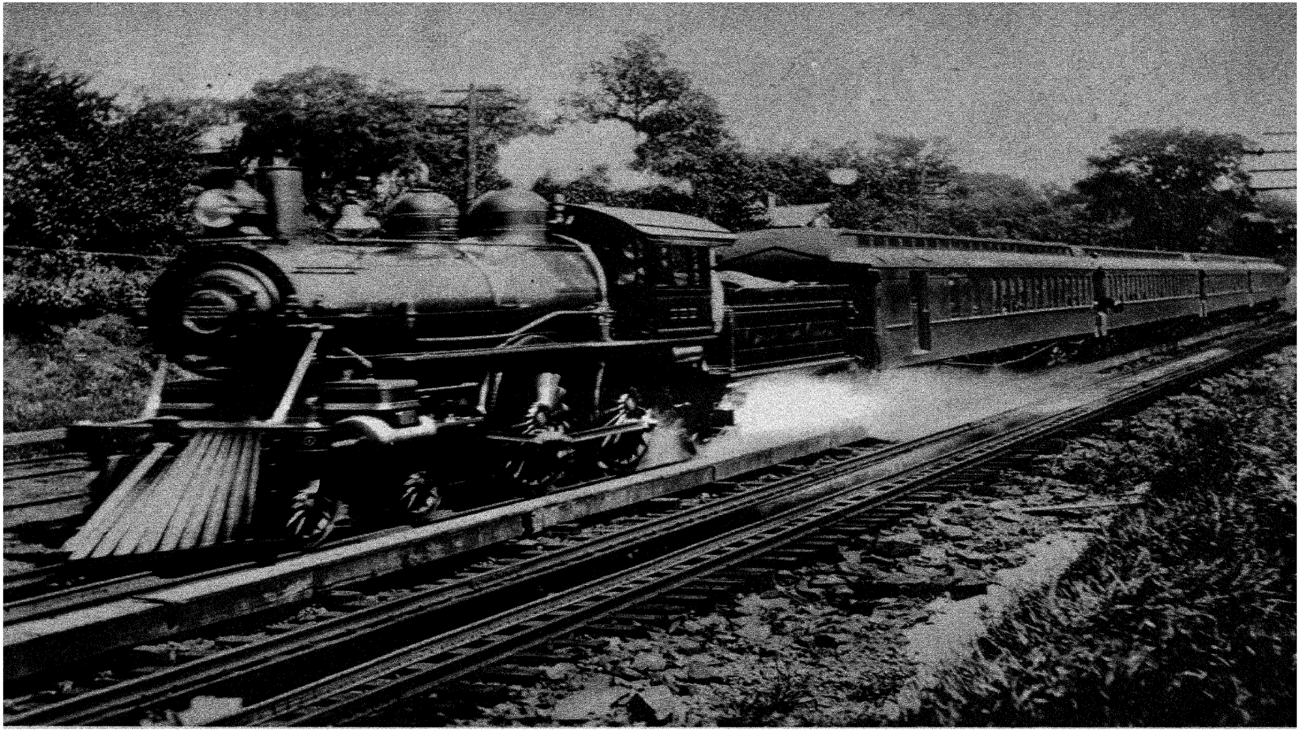
In 1866, anticipating the advent of transcontinental railroads, Holladay unloaded his transportation business on Wells, Fargo & Co. and blossomed out as a California steamship magnate. He developed a keen interest in the Oregon railroad war. He got behind the East Side line, established a lobby at the Oregon capital, gave an unending series of champagne dinners, bribed lawmakers, subsidized newspapers and obtained from the state legislature the lands previously granted to the West Side company. He bought out the rival road at a bargain price and completed the East Side line to Roseburg, 200 miles south of Portland, in 1872.

This coast-line railroad, with a majority interest in the Oregon Steamship Company operating between San Francisco and Portland, gave Holladay a strangle hold on the local situation. He organized the Oregon & California Railroad Company, which took over the East Side and West Side roads and all his other interests in the Northwest. He cashed his winnings by selling Oregon & California bonds to all comers. Between 1870 and 1872 more than $11,000,000 of these mortgage obligations were absorbed by European investors who had read much about the Union and Central Pacifics but knew very little about the mysterious domain called Oregon. In the following year, German owners of Oregon & California securities became suspicious and created a bondholders' protective committee. Their attitude was justified. Before the end of October, 1873, interest on the bonds was defaulted. Ben Holladay was safely out from under when the unhappy Germans retained Henry Villard to protect them, if possible, from further loss.

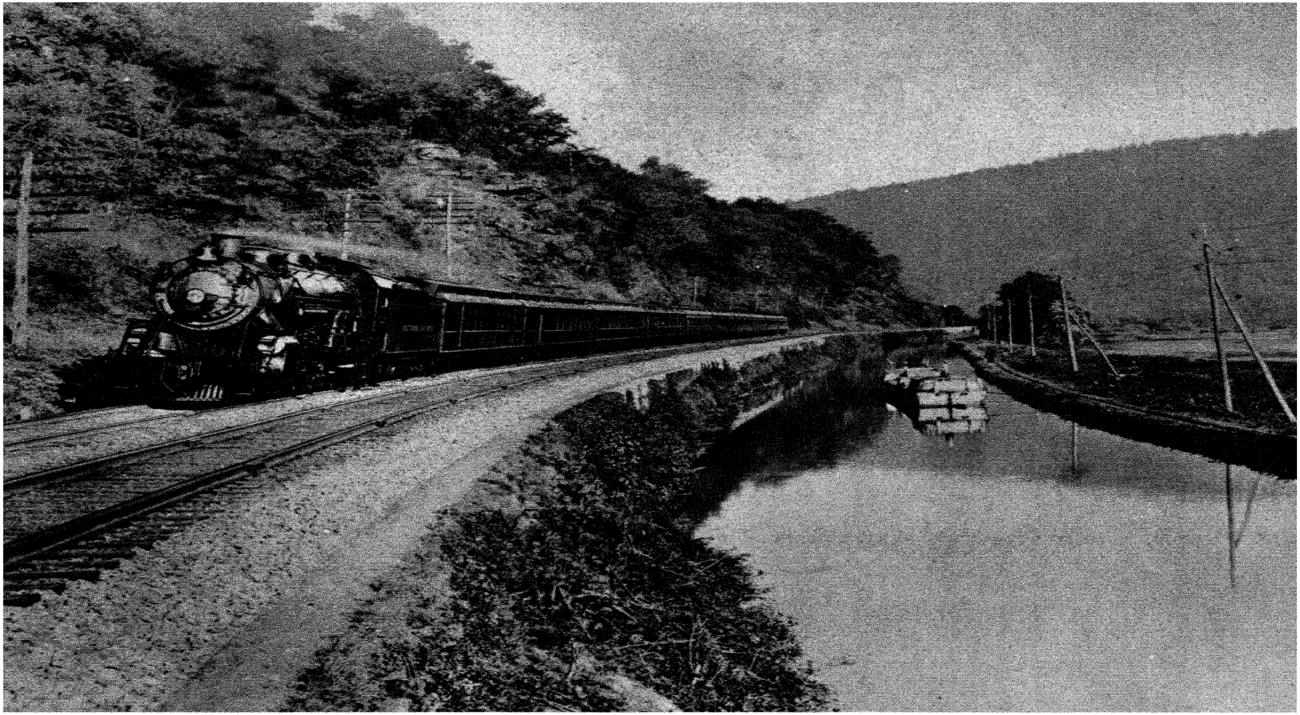
Villard's newspaper training enabled him to size up the situation with little loss of time. After long-drawn-out and exceedingly sharp negotiations he acquired Holladay's equity and as a representative of his clients in the fatherland took over the operation of the Oregon Steamship Company, the Oregon & California Railroad and the Oregon Central Railroad, the subsidiary formed to merge the East Side and West Side lines. His swift successes delighted his German backers. They made him president of the steamship and railroad companies and asked him to reorganize the Kansas Pacific Railroad in which they were heavily interested. This projected him into a battle of wits with the crafty Jay Gould. Villard won. He forced Gould to buy the German-owned bonds at par.

When he returned to Portland he began negotiating for a railroad from Portland to Ogden, incorporated as the Oregon Short Line, which would give him a transcontinental connection with the Union Pacific. As a first step in a larger plan he paid $5,000,000 for the Oregon Steam Navigation Company, which enjoyed an absolute control of upper Columbia River traffic.

This placid period of success was short-lived. Steamer competition developed rapidly and disastrous rate wars resulted. The German creditors abandoned themselves to despair and offered to sell out for anything they could get. Villard formed a syndicate in New York in 1879 which he called the Oregon Railway & Navigation Company with a financial setup of $6,000,000 in bonds and the same amount in capital stock. The new corporation took over the Oregon Steam Navigation Company and announced a new railroad from the cascades of the Columbia River to Walla Walla, Washington. Villard also planned a line through the Columbia River valley to Portland. These connections would provide complete control of the Columbia River valley. O. R. & N. rails were rushed eastward to Huntington where, in 1880, a



The New York Central's "999" setting a world's record of 112½ miles an hour in 1893.



Ships that passed in the day on the famous old Chesapeake & Ohio Canal saluted the debut of their swiftest rival, the Baltimore & Ohio's first Capitol Limited.

connection was made with the Oregon Short Line. Flushed with the success of this transcontinental strategy, Villard turned his attention to the straggling young railroad creeping westward from Lake Superior, hoping to pick up freight from the Columbia River. The time had come, he decided, to buy the Northern Pacific.

Railroads were cheaper sixty years ago than they are today. Nevertheless, an attempt to capture control of the Northern Pacific called for a substantial accumulation of easily available cash. This need spurred the chief of the Oregon Railway & Navigation Company to the invention of a scheme which startled contemporary financial experts and which newspaper headline writers of the period promptly dubbed "Villard's Blind Pool." He wrote to fifty wealthy friends and invited them to contribute specific sums of money to the creation of an $8,000,000 investment fund which would be under his exclusive management and in which he was taking a substantial personal participation. He could not tell them what he proposed to buy, or why, but he would give them a detailed accounting of the trust on May 15, 1881.

Some idea of the confidence Villard's mere word inspired may be gathered from the fact that the $8,000,000 was promptly subscribed a hundred per cent. When the date for an explanation rolled around, the blind-pool manager postponed his accounting and called for an additional $12,000,000. He received it without a single protest. The entire $20,000,000, of course, went into Northern Pacific common stock. When the cat was out of the bag and the faithful little band of investors knew at last why they had helped to create a blind pool, the original Northern Pacific owners discovered to their dismay that their railroad was now the property of a mysterious concern called the Oregon & Transcontinental. This was the first big holding company in American financial history. The outsmarted Northern Pacific officials tried to block the new control by issuing 180,000 shares of additional common stock, but Villard took them into court and won an injunction. This ended the incident. The old guard surrendered and the new management ordered full speed ahead.

Under Villard's driving direction construction of the Northern Pacific moved swiftly. Billings, Montana, was reached on September 1, 1882. This brought the main line within 475 miles of the eastern terminus of the Oregon Railway & Navigation Company. On September 8, 1883, the last spike in the connecting link was driven near Gold Creek, Montana, by General Ulysses S. Grant, and another transcontinental railroad was operating through trains. The final blow of the sledge at Gold Creek sent a thrill through the inland empire.

Minnesota's capital city celebrated the event in gala mood. President Arthur, General Grant, General Sheridan, James J. Hill and numerous other celebrities attended the banquet at the old Hotel Lafayette, where all the orators of the evening paid tribute to Henry Villard, and he, paying tribute to the inland empire, observed that he could breathe freer in good old St. Paul, where "I am emancipated from the demoralizing influence of Wall Street."

Happily for Mr. Villard, he could not foresee the panic of 1893, not to mention a certain New York Stock Exchange stampede eight years later that sent Northern Pacific common stock to $1,000 a share.

Portland real estate boomed, and its inhabitants gloated over Puget Sound citizens when the former village at the confluence of the rivers became the western terminus for a transcontinental railroad. There was further rejoicing when the Oregon Railway & Navigation Company was ordered to rush completion of its tracks to Baker for a connection with the Union Pacific's new line from Ogden. The cup of joy overflowed when Villard arranged a deal that would give him a connection with the Denver & Rio Grande Western. The fishing hamlet of the fifties, built a hundred miles inland from the sea, was now a bustling young metropolis about to enjoy three direct rail connections with Chicago and the East.

Henry Villard possessed something akin to a Napoleon complex. He was never entirely content with the conquests he achieved. Throughout his fight to capture the Northern Pacific he was quietly building a branch railroad from Portland to Puget Sound. On the very day General Grant swung his sledge at Gold Creek the new line to the north was completed. As a result of this synchronization the Northern Pacific proudly announced through service from Duluth on the shore of Lake Superior, through Portland on the banks of the Willamette and Columbia, to Tacoma, youngest city of Washington, on a deep-water inlet of the Pacific Ocean.

Even this achievement did not satisfy the head of the Northern Pacific. He turned promptly to his Oregon & California Railroad and ordered an extension of its roadbed to a ferry connection in Oakland. He was ready to add San Francisco to his big rail empire. Unfortunately, these far-flung plans were a bit too ambitious. In December, 1883, Villard reached the end of his financial rope. A syndicate was formed in the East to take over his transportation activities. A few months later he retired to Europe to try the effect of a complete rest on his shattered nerves.

If, like Napoleon, he had to meet his Waterloo, Henry Villard was determined to stage a return from Elba. When his vacation was ended he came back to the United States as American agent for the Deutsche Bank, raised fresh capital on the strength of his European backing and swiftly recaptured all his old Northwest properties. For a while he worked closely with the Union Pacific, but this alliance eventually gave way to a bitter war between the two big transcontinental roads. In the battles that followed, the Union Pacific captured mile after mile of rival trackage. Collis P. Huntington of the Central Pacific, taking advantage of the complicated situation, slipped in very quietly, picked up the Oregon & California on his own terms and, in 1887, made it a permanent unit of his new Southern Pacific system, thus connecting Portland at the north with San

Francisco at the center and, ultimately, with New Orleans at the mouth of the Mississippi.

Meanwhile, work had been pushed on a direct Northern Pacific line through the mountains to Tacoma. The North Coast project required the digging of a long tunnel through the Cascades and this difficult engineering feat was not completed until 1888. One year earlier, on July 3, 1887, the first through train on the present main line of the Northern Pacific, utilizing a switchback over the mountains, rolled into Tacoma. This accomplishment was a blow to the Oregonians. They turned to the Union Pacific. That big railroad, without an independent outlet to the sea, now faced competition with one transcontinental line to Puget Sound at the north, and another at the south from San Francisco to New Orleans. This setup called for a deal. That is why on April 11, 1887, the Union Pacific, operating through its Oregon Short Line subsidiary, found it possible to lease the Oregon Railway & Navigation Company, guaranteeing 6% dividends on the stock and all interest charges on the bonds of that company for a period of 99 years.

This arrangement meant a fight to the finish between the Union Pacific and Northern Pacific, with Portland and Tacoma cheering their champions on to victory. Both roads paid the price of this ruthless war. In the summer of 1893 there were four transcontinental lines competing for business in the Northwest while a major depression gripped the nation. Both the Union Pacific and the Northern Pacific were forced into bankruptcy, and the rich inland empire for which they had fought was crossed and recrossed with rusting lines of abandoned tracks overgrown with grass. Henry Villard was no longer interested in the picture. He was leading a life of contentment back East. He had made himself the head of the Edison General Electric Co. at Schenectady and had become the owner of a new magazine called *The Nation* and a revitalized afternoon newspaper known to fame as the *New York Evening Post.* A newcomer in the field was ready to pick up the crown which Villard had twice surrendered. The successor was James J. Hill, head of a third transcontinental line. This road, built into the Northwest without government aid, paid dividends to its stockholders while its older and subsidized rivals were seeking an 1893 equivalent of 77B.

CHAPTER XV

"And They Laid Jesse James in His Grave"

Life in Gad's Hill lacked thrills in the early seventies. There were no Wild West movies to quicken the pulses of the local populace. Even the few occasional crimes in the neighborhood followed a commonplace pattern. That is why the passing of the Little Rock Express through this flag station on the Arkansas branch of the Missouri Pacific's Iron Mountain Division was an outstanding daily event. She was due at 5.40 P.M. and frequently flashed past on time. Taking no chances, therefore, the energetic citizenry made it a rule to assemble every afternoon shortly after five and brace themselves for the clamor and clangor and rush of rudely displaced air as the fastest thing in that part of the world rattled over light iron rails alongside the pine-wood platform at something better than forty miles an hour. It was a brief entertainment, but it thoroughly justified itself whenever a good-natured express messenger, or a frivolously inclined conductor, or even a train-butcher member of the railroad aristocracy unbent sufficiently to wave a lordly greeting as the limited thundered past and was lost to sight around the curve.

It was getting dangerously close to the 5.40 deadline on January 31, 1874, when the last arrivals for the day put in an appearance. They were six in number and they were mounted on good-looking horses. Their blue army overcoats and broad-brimmed felt hats gave them a semi-military appearance. So, too, did the heavy revolvers that hung from their belts. These persuasive implements of their avocation went into action the moment the sextet dismounted. The resident railroad agent, a son of the Gad's Hill doctor, two husky wood choppers and the brawny village blacksmith were promptly covered, herded into the station and instructed to remain behind closed doors until further orders. Then, with a degree of speed and precision that indicated careful training for the task, the visitors threw open a switch which diverted the through rails to a siding and planted a red flag in the middle of the main-line track. With the stage thus set, the interrupters of traffic withdrew into the shadow of the station and awaited developments.

Their vigil was brief. After a dramatic pause that followed the bustle of preparation, a humming along the rails announced the approach of the Little Rock Express. A moment later two sharp blasts from the locomotive's whistle said that the engineer's sharp eyes had detected the red flag. With grinding brakes and a roar of escaping steam the flyer came to a protesting stop and the train crew piled out to see what it was all about. Their curiosity was promptly rewarded. While two of the holdup artists kept the engineer, fireman, conductor and brakeman carefully covered, the other four members of the gang frisked the passengers and explored the possibilities of the mail and express cars. The crop was not quite up to expectations, but it panned out in the neighborhood of $12,000.

Pride of profession, or possibly a weakness for historical accuracy, delayed the departure of the train robbers. One of the band, obviously skeptical on the subject of local journalistic ability, constituted himself press agent for the afternoon's event. He wrote out his version of the incident and delivered it to the train conductor with a flourish. His news story stressed the complete success of the venture and the efficiency of its promoters. These experts, he reported, "all six-footers, escaped on fine blooded horses, going in a southerly direction." As a precaution against editorial underplay of the exploit, he added a final paragraph which read:

"The whole thing made a hell of an excitement in this part of the country."

This, unquestionably, was no exaggeration. The holdup created something more than excitement at railroad and express company headquarters. Well-mounted and heavily armed posses were soon out on the trail. Very little research work was needed to convince the authorities that the Gad's Hill job had been pulled by the notorious Youngers, a particularly active alliance of four fast-shooting brothers and a few well-drilled assistants. After a relentless chase that lasted for years, a series of running gun-fights and numerous lucky escapes, the Younger gang was eventually run down. Cole Younger, the leader, and two of his three brothers, John and Jim, had staged the Gad's Hill stick-up. Bob

Younger, the fourth male of the family, was not in on this particular job, but was wanted for other crimes. He was caught in the net at the final round-up. This ended the regime of the Youngers. They were sentenced for life in the penitentiary at Stillwater, Minnesota. Bob and Jim died in prison, but Cole Younger, chief of the gang, won a pardon for good conduct in 1903.

The Youngers were not pioneers in the train-robbing era. The first important holdup in American rail history was staged on May 22, 1868, when an Adams Express car on the Jeffersonville Railroad was cracked at Marchfield, Indiana, to the tune of $97,000. This crime was credited at the time to the Renos, an earlier combination of blood brothers in crime. The Youngers, however, were the first to press-agent their exploits. This penchant for publicity should have given them a well-merited standing in underworld history. Unfortunately for them, they had no contacts with writers of popular songs. Their activities failed to click with posterity when the head of a rival group became the hero of a ballad that soon swept the country. If the present generation recalls just one of the first families to flag trains for a living, the blame must be laid at the door of the poet who wrote:

> "Robert Ford watched his eye
> And he shot him on the sly,
> And they laid Jesse James in his grave."

The James brothers probably netted less profit from holdups than any other famous train robbers in the quarter of a century that followed the close of the Civil War. One of their best hauls was made in the afternoon of December 12, 1874. On this particular day five men rode into Muncie, a little Kansas town about eight miles west of Kansas City, Missouri. Four of the party were armed with carbines and revolvers. The leader, a strongly built, black-bearded man about thirty years old, was content with two heavy .45's strapped to his waist. The visitors stuck up a general store and took $24 in cash from the proprietor. This, it seemed, was merely a diversion to kill time while waiting for the 4.45 passenger train from the west.

This fast express stopped when the engineer saw a pile of ties laid across the track, and he and his fireman obeyed all orders that were backed with guns. The conductor, however, swung off behind and began running down the track. Warned by a rain of bullets that this activity was not considered entirely *de rigueur*, he came back and explained that he merely wished to flag a fast freight following close behind. The robbers, conceding merit in his idea, told him to go ahead with his plan. While he was performing this mission the Wells-Fargo express messenger was forced to open his safe, and out tumbled $25,000 in currency, $30,000 in gold and some jewelry that later brought bad luck to at least one of the gang. Satisfied with this haul, the leader told the engineer to call in his conductor and go ahead. As the train pulled out he yelled to the badly scared passengers:

"Give our love to the folks in Kansas City."

Careful descriptions of the bandits convinced the authorities that the black-bearded leader was Jesse James, who was rapidly building up a reputation as a robber and killer. Immediate pursuit was blocked when two of the gang, before racing out of Muncie, took the precaution of shooting all the fast horses they could find in the village. Their trail was lost at the point where they crossed the state line and rode into Jackson County, Missouri. A few weeks later, however, one of the fugitives, Bill McDaniells, decided to go on a spree. The authorities who arrested him for disturbing the peace found in his possession some of the jewelry taken in the Muncie holdup. This evidence, of course, landed him in jail. He was shot and killed two months later when he tried to make an escape.

The next and last train robbery staged by Jesse James netted a little over $600 and cost two lives. On July 15, 1881, the Rock Island's passenger train No. 2 pulled out of Kansas City at 6.30 P.M., headed for Omaha. Her make-up included a combination baggage and express car, a smoker, two day coaches and a sleeper. She was on time at Cameron, a station 64 miles northeast of Kansas City, and a meeting point for the Hannibal & St. Joseph Railroad. Just before No. 2 pulled out of Cameron four men entered the smoker and occupied seats near the middle of the car. At Winston, the second scheduled stop ahead, one of this quartet held a white handkerchief against the glass in a car window. In response to this signal two men slipped across the station platform and climbed on the front end of the baggage car, just behind the locomotive tender. Two more loiterers jumped on the platform between the baggage car and smoker. Conductor Westphal swung his lantern as a signal for the engineer to go ahead and entered the smoker. He was followed by the two men on the platform and greeted with drawn revolvers by the four passengers who had come aboard at Cameron. From both forces came the command:

"Throw up your hands!"

The conductor, very foolishly, disobeyed this order. He dropped his lantern and ran down the aisle toward the rear of the train. Just as he reached the door it was opened by Pullman Conductor Southworth. Simultaneously a revolver shot rang out and Westphal, throwing up his hands, stumbled out on the open platform and rolled off the train. Southworth, closely followed by the robbers, ran back to the sleeping car, shouting a warning. One of the day-coach passengers, John McCullough, made a movement which the bandits considered suspicious. He was promptly shot and, like Conductor Westphal, staggered out on the platform and into the ditch. At this particular moment the rear brakeman, Harry Thomas, pulled the cord that controlled the automatic air brakes and the train stopped with a jolt. This brought the two robbers behind the tender into action. They climbed into the cab, covered Engineer Walcott with a gun and one of them yelled:

"What the hell are we stopping for? Pull ahead!"

The engineer replied:

"I can't. Someone's put on the automatic."

The bandit's comment was a revolver shot that just missed its mark. Before he could fire a second time, Walcott extinguished the only light in the cab, slipped through the window to the running board, put out the headlight and hid on top of the pilot. This strategy was a wasted effort. The men in the cab were familiar with the operation of a locomotive. As soon as the air in the brakes was exhausted, they jerked the throttle open and ran ahead to a place they had picked for the holdup. When this point was reached they broke into the United States express car and forced Messenger Charles Murray to open the safe. It yielded exactly $600 in currency and a $1,000 nonnegotiable bond. With this slim booty, and with the train once more in motion, the bandits jumped off and faded into the night.

There was no doubt this time about the identity of the robbers. When Engineer Walcott, after picking up the bodies of Westphal and McCullough, backed his train to the nearest station, the holdup was reported as the latest and most brutal crime to the credit of Jesse James and his gang. President Riddle, of the Rock Island, offered a $5,000 reward for any information leading to the capture of the bandits. Governor Crittenden, of Missouri, offered $5,000 a head for every member of the gang and an additional $5,000 each for Jesse and Frank James. This was big money in that part of the world and it brought results. Eight months later, in March, 1882, Robert and Charles Ford, after establishing friendly relations with Jesse James, proposed to him a plausible plan for robbing the Platte City Bank. A deal was made and April 4 was the date selected for the stick-up. This compelled the Fords to pick the preceding day for their private activities.

The morning of April 3 was hot and sultry. Jesse James, relaxing at his home in preparation for the new robbery, took off his coat and vest. His next move was a blunder. He unbuckled the heavy belt to which his famous .45's were hung and tossed it on top of the coat. Then, commenting on the dust that had gathered on a picture hung against the wall, he stepped on a chair with a cloth in his hand and turned away from his guest. That was the last mistake he ever made. He probably heard the click of Robert Ford's heavy revolver, but before he could turn to look, a .45 bullet ploughed through the back of his head, killing him instantly.

The Fords were arrested for murder but were, of course, promptly pardoned. Six months after Jesse James was laid in his grave, Frank James surrendered and was sentenced to life imprisonment. Many years later, on the theory that he was dying of tuberculosis, and probably helped by the vogue of an extraordinarily popular song, he was pardoned and lived long enough to capitalize heavily on a typically American susceptibility to the appeal of misplaced sentiment.

There was some justification for sentiment in America's first important one-man train robbery. This exploit was staged in the evening of October 25, 1886. Just as the train conductor sang out his "All Aboard" for a westbound 'Frisco passenger train in the St. Louis Union Station, a big man carrying a valise ran alongside the express car, threw his luggage through the door and swung himself aboard. When David S. Frothingham, the Adams Express messenger in charge, turned to face him he voiced a cheerful greeting and tendered a letter of introduction. This document, written on Adams Express Company stationery and signed with the name of J. B. Barrett, Route Agent, was an official request that the bearer, Jim Cummings, be carried as far as Pierce City to learn the run. Since this was a conventional express-company procedure, Frothingham assigned his new helper to some simple tasks and concentrated on his own more important duties. When the train was about fifteen miles west of St. Louis, and while his back was turned to his helper, the messenger's revolver was snatched from his hip pocket, a powerful arm caught his neck in a viselike grip, and he was thrown to the floor of the car. In something less than three minutes Frothingham was tied hand and foot and effectively gagged. Then, with a courteous apology, the robber took the messenger's keys from his pocket, opened the safe and plucked therefrom $59,000 in cash and $30,000 in diversified securities. He opened his valise, threw some of its contents through the side door, replaced them with the loot from the safe and returned the borrowed keys. His friendly attitude took another development when he removed the gag and sat down for a cheerful chat with his victim. While the fast train swayed and swung into the night, and the engineer blew for crossings and stations, he discussed various topics in which he was interested, including some of the more popular songs of the day. Finally, when the whistle sounded for Marshall Crossing, the lone-wolf bandit with obvious reluctance replaced the gag in Frothingham's mouth and said:

"This is where I get off. Good night."

He swung himself from the express car before the station was reached. The train, halting only momentarily, moved on into the darkness while Frothingham fought to remove his fetters. Eventually the lack of any activity in the express car attracted the attention of the train crew. They investigated and found the messenger still helplessly bound and gagged. Notwithstanding this evidence, express company officials evolved the theory that Frothingham was in on the holdup. The letter of introduction was, of course, a forgery. A strong case against the messenger was built up by detectives. And then the mysterious bandit projected himself into the proceedings.

A letter received by the St. Louis *Globe-Democrat* and signed Jim Cummings told the inside story of the robbery. The writer enclosed wrappers he had taken from two of the stolen money packages. As additional evidence, he referred the detectives to a parcel he had checked at the Union Station in St. Louis and described the contents—a gun, a billy and some printed songs.

This parcel was taken over by the authorities. The contents checked with the description mailed to the newspaper and, unfortunately for the robber, provided a clue he had overlooked. He had scribbled an address on the back of one of the songs. Detectives, following up this lead, soon arrested Jim Cummings, whose real name was Fred Witrock. There was no record of crime against the prisoner. He had worked all his life as a bookkeeper in Chicago. He took a fling at train robbing because a $1,700 mortgage was falling due on his mother's home. She had borrowed the money for him a few years before and he had lost it in an unwise business investment. Witrock went to the penitentiary and the mortgage was foreclosed.

The Daltons, the Jameses, the Renos and various other train-robbing outfits led strenuous but comparatively brief lives of crime. They had one rival, however, who operated on and off for forty long years. This persistent gentleman was Old Bill Miner who, according to William A. Pinkerton, was the author of a very famous phrase. It was Bill, it seems, who first yelled:

"Hands up!"

He was not known to fame as Old Bill when he gained this distinction. He was just twenty-one years old when he was arrested for the first time, back in 1869, convicted on a stage robbery charge and sent to the penitentiary for a ten-year term. This mishap did not wreck his career. After serving out his sentence he went back to his old profession and prospered until November, 1881, when representatives of the law identified him as the expert responsible for a stage holdup between Sonora and Milton, in Tuolumne County, California. This exploit won for him a twenty-five-year stretch in San Quentin. The authorities knocked off a little more than five years for good behavior and released their prisoner on June 17, 1901.

Like Othello, Bill Miner soon became convinced that his occupation was gone. He was fifty-three years old when he bade the San Quentin warden good-by. More than half of these years had been spent behind bars. Meanwhile, times and fashions had changed. It shocked him to discover that stagecoaches had gone the way of the covered wagon and the pony express. A less ambitious individual undoubtedly would have thrown up the sponge at this stage of the game. Old Bill, however, was made of sterner stuff. He promptly inaugurated an intensive study of modern transportation methods.

One of his early experiments was at the expense of the Oregon Railway & Navigation Company's passenger train No. 6, which he stopped and examined at Milepost 26, near Corbett, Oregon, on September 23, 1903. This activity proved reasonably profitable, and a reward of $1,300 for Miner's capture was widely advertised. One year later, on September 10, 1904, he proved that he was rising rapidly in his newfangled life's work. He flagged the Canadian Pacific's Transcontinental Express at Mission Junction, British Columbia, and departed with $16,000 in gold dust and currency. This activity by an alien seemed to annoy the Canadians. The Dominion government offered to pay $5,000 for Old Bill Miner—dead or alive. The Canadian Pacific matched this offer. The government of British Columbia added $1,500 to the pool. Thus, with the Yankee offer of $1,300 still outstanding, Bill was worth $12,800 to any taker.

On May 9, 1906, the Canadian Pacific's westbound Transcontinental Express was running full speed through the night a few miles west of Ducks, a small, lonely station in the Rockies, not far from Furrer, British Columbia. While intent on watching the track ahead, the man at the throttle felt a courteous, almost apologetic tap on his shoulder. He looked around and found himself facing a masked individual who had climbed over the tender and into the cab. This visitor was covering him with an efficient-looking .45. Two other wearers of masks had the drop on the fireman.

"Cut off the mail car," ordered the man beside the engineer.

This was Old Bill speaking. Also, it was the first blemish on his train-robbing record. The engineer obeyed, broke the train and pulled the mail car about two miles ahead. And then, of course, the error of judgment, or slip of the tongue, or whatever had inspired Bill to mention the mail car, became painfully obvious. The treasure he sought was in the express car—two miles behind. It may be that the commander of the expedition was overcome by mortification when he realized the enormity of his blunder. It is possible that sheer shame caused him to lose his nerve. In any event, instead of ordering a return to the train, he told the engineer to run to a point about seven miles ahead, where he and his colleagues dropped off the running board and disappeared in the darkness.

The visitor had crowded his luck just a trifle too far. Our neighbors north of the line looked with a jaundiced eye on his love of their country and his weakness for Canadian Pacific fast trains. Another list of rewards totaling $11,500 was posted. This gave the hard-working

Mr. Miner a net value of $24,300 to whom it might concern. And this time the Canadian Mounted Police really got on the job. They brought their man back on May 14, 1906, after a hard fought battle with rifles and revolvers. The associate bandits got off with twenty-five-year sentences, but the head of the firm was told that the Canadian government insisted on giving him free board and lodging for the balance of his life.

This idea did not appeal to the veteran train robber's rugged individualism. One year later, on August 8, 1907, he made a getaway from the Westminster Penitentiary and returned to his native land. His act of repatriation was not a complete success. A brief enjoyment of the simple life in the land of the free came to a final end when he stuck up a Southern Railway train down in Georgia and thereby brought himself to the attention of Colonel Edmund W. Starling, now Chief of the White House Secret Service, who at that time was guarding the interests of the Southern Express Company. Old Bill occupied a coffin when he made his fourth and last exit from a carefully chaperoned life behind bars.

CHAPTER XVI

The Road That Followed the Pig's Eye Dog-Team

Falling snow obscured the trail ahead, but low growls and the bristling necks of his dogs told the man from St. Paul that another team was approaching. A minute or two later his ears confirmed the keen scent of his four-footed companions. A southbound sleigh drew alongside and the two drivers exchanged greetings. Both had been fighting through a white wilderness for several days. They were glad of an excuse to rest. While sharing a frugal meal of frozen food, they exchanged information about themselves and the paths they had just traveled.

The voyageur from the north, on a special mission from his post at Fort Garry (now Winnipeg), saw the look of keen interest on the younger man's face when he introduced himself as the resident governor of the Hudson's Bay Company in Montreal, temporarily assigned to the Middle West territory. He, in turn, made a more careful study of his new acquaintance when he heard that he was en route to Fort Garry in the interests of upper Mississippi River steamers and the flat-bottomed boats on the Red River of the North. The two men had, of course, a number of interesting things to discuss. What is more important, each took a quick liking for the other.

That chance meeting on a dog-sled trail in March, 1870, was a momentous incident in the lives of both men. The traveler from Fort Garry was Donald A. Smith, later known to fame as Lord Strathcona. The man from the headwaters of the Mississippi was James J. Hill. Eight years later these two pioneers became partners in a daring enterprise that led to the creation of the Great Northern Railway and the building of the Canadian Pacific. It was also the genesis of the mighty system known as the Hill Lines, which later gave the Great Northern, the Burlington and the Northern Pacific absolute dominion over the fast-growing traffic of the American Northwest.

James J. Hill, born near Guelph, Canada, on September 16, 1838, arrived in St. Paul on July 21, 1856. He was headed for a life of adventure with trappers and traders along the Red River of the North, but missed a connection with an expedition he had planned to join. As a result of that mishap, he settled down to the life of a Mississippi River shipping clerk in the tiny community that was to become his permanent home. In the next twenty-two years a combination of hard work and a thirst for information prepared him for the big role he was destined to play in a colorful, real-life drama.

St. Paul had become a town of about 4,000 inhabitants when young Jim Hill took his place on the levees. The future capital of an important state was trying at the time to live down the name of Pig's Eye, bestowed on it in earlier days in honor of a one-eyed gentleman who operated a shanty saloon on the river bank now covered by city streets.

The boy from Canada took kindly to his new environment. He was fascinated by the possibilities of water transportation. His vivid imagination, fired by omnivorous reading, bred in him an ambition to operate packets on the holy waters of India's sacred Hooghly River, with a connection on the Ganges, to give him a monopoly on the commerce between Benares and Calcutta. He never forgot these boyhood dreams. They played a part in his strategy two decades later when he reached out from Seattle for trade with the Orient.

Young Hill was a friendly soul. He liked to discuss his colorful plans with the men on the levees, the village barber, the local editor, or anyone else who would listen to his ideas. Like the gentleman responsible for St. Paul's original name, Jim Hill had only one eye. That surviving center of an optic nerve flashed fire and his long black hair waved in the breezes as he drove home his points with an insistent forefinger. He lived and breathed transportation through his nine years as a clerk. When he founded his own business in 1865, he was a genuine traffic expert. He represented Mississippi steamboat companies; he imported coal for retail; he dabbled in salt and wheat; and he was a partner of Norman W. Kittson in the ownership and management of the Red River Transportation Company, which fought the Hudson's Bay Company to a standstill and ultimately absorbed all steamboat interests on the Red River of the North.

The panic of 1873, which threw most of America's 70,000 miles of railroads into bankruptcy, brought Jim Hill the big chance of his life. He had kept his eye for some time on the St. Paul & Pacific Railroad, a somewhat weird collection of short links in what was designed as a mammoth rail system. It operated a 10-mile line from St. Paul to St. Anthony (now Minneapolis) and the road continued on to Watab (now Sauk Rapids), a distance of 70-odd miles. A longer line covered the 207 miles between St. Anthony and Breckenridge. A third road, only partially built, was graded from Sauk Rapids to Brainard, from which point it was to be extended up the Red River valley to St. Vincent or Pembina on the Canadian line. Actual control of these straggling properties was vested in bonds and other obligations, totaling $44,000,000, mostly owned by Dutch investors who were clients of various Amsterdam banking houses. Jim Hill decided it would be a good idea to buy enough bonds at depreciated prices to foreclose on the essential properties and weld the fractions into a railroad that would connect the upper Mississippi with the fertile Red River valley. All he needed, he felt, were suitable partners and a few stray millions.

He opened fire on his Red River associate, Norman W. Kittson. That unfortunate individual could not escape the rapid-fire arguments and jabbing forefinger of his St. Paul partner. Very much against his own cautious judgment, he agreed to go along. Donald A. Smith, of the Hudson's Bay Company, slowly surrendered to the cumulative force of pounding words. He brought into the new syndicate a Canadian friend, George Stephen, afterward Lord Mount Stephen, who happened to be the president of the Bank of Montreal. This fourth member of the group agreed to sound out financial interests in London and endeavor to obtain the funds necessary for a purchase of bond control.

Only $5,500,000 were needed to swing the deal, but George Stephen failed in his attempt to obtain even a fraction of that sum. The Dutch owners, bitterly disappointed when the first negotiations were dropped, rapidly drifted into a mood of absolute pessimism. Eventually, they agreed to sell their bonds on credit, if $280,000 in gold was put up to bind the bargain. That modest sum was within the realm of possibilities. Hill, Kittson, Smith and Stephen squeezed their assets dry, deposited better than a quarter of a million in the Bank of Montreal and made themselves responsible for more than $10,000,000 each. It took courage to nod their heads when the time came for the die to be cast. Everything they owned in the world, their reputations and their entire futures were committed to the success of a gamble which the people of St. Paul described as Jim Hill's Folly.

There was ample justification at the time for a general belief that the St. Paul & Pacific purchase was a wildcat gamble. Minnesota was almost a wilderness in the early seventies. A plague of grasshoppers had followed the panic of '73. Deserted farms were more conspicuous than new homes when Hill and his associates closed their deal. The land grants they inherited from the Dutch bondholders would be forfeited in a few months if specific rail connections were not completed within rigid time limits. No disinterested contractors could be trusted to meet the drastic need for speed, so the buyers of the bankrupt road took over the job of completing construction. They were paid as they went along with debenture bonds on roadbed actually built. They raised money for further activities by discounting these debentures at the Bank of Montreal.

The right-of-ways they extended dated back to 1857, when the Territory of Minnesota chartered the Minnesota & Pacific Railroad with a theoretical capital of $5,000,000 and authorized it to build from Stillwater on the St. Croix River, a part of Minnesota's eastern boundary, via St. Paul and St. Anthony, to Breckenridge on the western border. This was a distance of 225 miles. A branch line from St. Anthony to St. Vincent on the Canadian border through what is now Brainard gave the east-and-west line a 285-mile feeder into the Red River settlements.

Jim Hill took personal charge of construction in the spring of 1878. His first concern was the line to the West. August 1 of that year was the date set for forfeiture of the land grant if by that time trains were not running to Sauk Rapids. Hill drove his crews remorselessly. By July he was laying track at the rate of a mile and a half a day. His first locomotive puffed into Sauk Rapids just twenty-four hours ahead of the deadline. Flushed by this victory, he swung his army of workmen over to the northern feeder, between St. Vincent and Emerson. He was rushing to meet a pioneer project of the newly organized Canadian Pacific Railroad, described as the Pembina branch. This race was finished before the end of October. On November 1, a St. Paul & Pacific train rolled into Emerson and through service from St. Paul to Winnipeg was announced.

On May 23, 1879, Hill, Smith, Stephen, Kittson and John S. Barnes, a member of the firm of J. S. Kennedy & Co., New York representatives for the original Dutch bondholders, met in St. Paul and organized the St. Paul, Minneapolis & Manitoba Railroad. The new company announced successful operations on 565 miles of completed track. What was more important, the rosy future Jim Hill had predicted began to loom as a possibility. The grasshoppers disappeared as mysteriously as they had first arrived. Surviving farmers reported bumper crops. New settlers swarmed into the country to open up the soil. The Manitoba Railroad was forced to shop around for equipment to handle the swiftly increasing traffic. A recapitalization was arranged. The old bonds purchased from Dutch owners and other original obligations were wiped out with $16,000,000 in new bonds. The capital stock behind the bonds was limited to $15,000,000. The new transportation company, with all original surveys justified, now had a capital structure of $31,000,000 to balance against the $44,000,000 for which four men had made themselves responsible when they squeezed their combined assets into a $280,000 down payment for the purchase of a partially built and totally bankrupt railroad.

One last menace clouded the situation. The newly reorganized Northern Pacific turned a suspicious eye on its vigorous little rival. The interests back of the older road had expected to take over the St. Paul & Pacific at the psychological moment and dictate terms. They resented the evolution of the Manitoba from the wreckage into which Hill and his friends had dived. They decided to put pressure on their small competitor, force a second bankruptcy and pick up the pieces they wanted. The Red River valley was the heart of the Manitoba System. The Northern Pacific elected to build a competing line through this valuable territory and send trains to Winnipeg.

Jim Hill did not cringe before this threat. Instead, he resorted to the strategy of the poker table and called his powerful rival's bluff. The Union Pacific, he said, was ready to step into the picture, build a connection to the Manitoba's main line and provide traffic exits to the south and west. Under these circumstances, said Hill, he must cancel the trackage rights he had granted the Northern Pacific between Sauk Rapids and St. Paul and revise drastically upward his charges for use of the Manitoba's St. Paul terminals.

These daring threats and their fear that Hill might be telling the truth about the Union Pacific brought the Northern Pacific directors down with a jerk from their lofty perch. They asked for time to think. Then they offered a counterproposal. The Northern Pacific would abandon its plan to build into Winnipeg. Certain undercover obstruction campaigns against the Manitoba would cease and specific guarantees against such activities in the future would be provided. In return, the Manitoba must renew the trackage and terminal agreements. This proposal was eminently satisfactory to Hill. He had no desire to hook up with the Union Pacific or any other railroad. He had his own definite plans for the future. He delayed his answer, however, and assumed a convincing air of reluctance. After a suitable delay, a deal was closed and the Northern Pacific retired to its own territory.

The Manitoba doubled its trackage under the driving force of Hill's restless ambition. In 1884 he was operating 1,000 miles of main line with a maximum grade of 26 feet, and only 220 miles with more than a 30-foot maximum. This type of roadbed meant operating costs that cut far under the Northern Pacific and brought big profits into the Manitoba till. These mounting receipts enabled Hill to improve his equipment, cut rates and build profitable feeders. That was merely part of his program. In the back of his mind, jealously withheld from utterance when he spoke eagerly of the future, was an irresistible urge to take his tracks to Puget Sound. He was literally afraid to disclose his dream to his closest friends. Instead, he took some cautious preliminary steps.

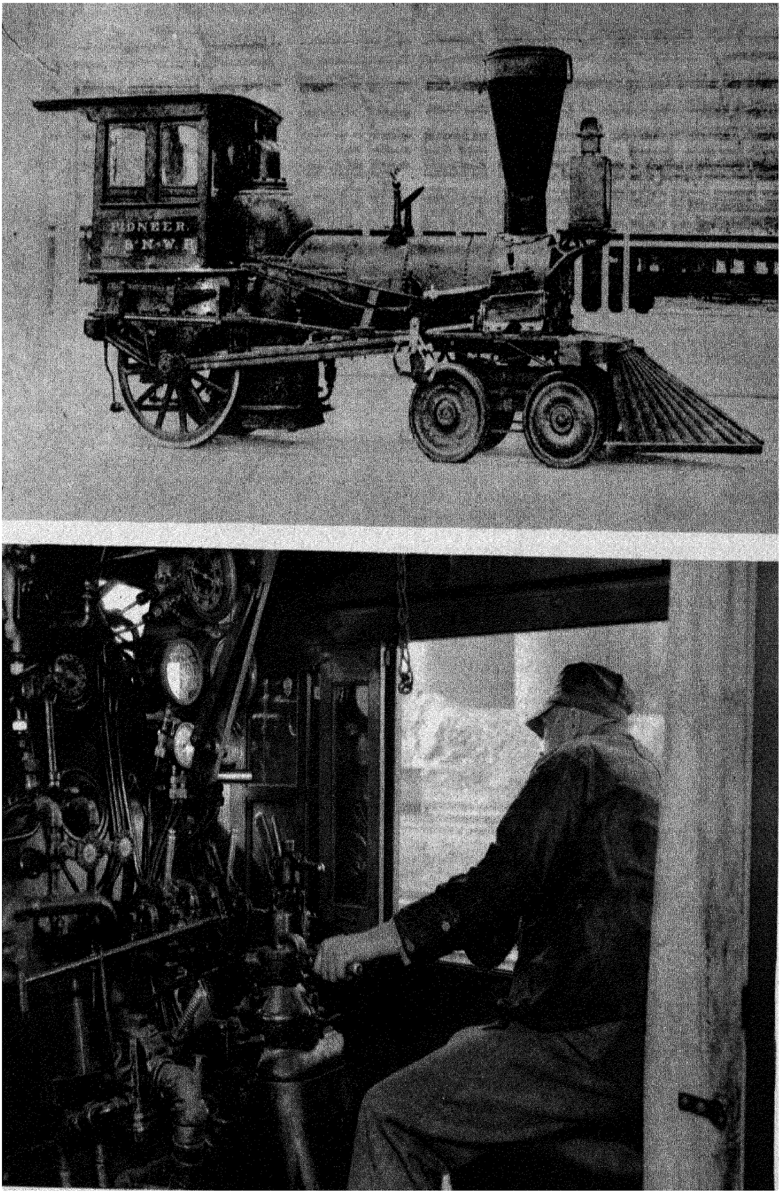
In 1884 he organized very quietly a new railroad called the Montana Central. The ostensible aim of this project was to connect Great Falls, Helena and Butte. Two years later the Manitoba began to extend its line to the west. The speed of construction should have served warning to the Northern Pacific management. In the summer of 1887 Hill's experts built more than 8 miles of track in a single working day. By the end of the year the gap was closed, and early in 1888 the Manitoba unostentatiously took over the entire capital stock of the Montana Central Railroad. The march to the Pacific had begun.

The bankers and businessmen of the Northwest had described the purchase of the bankrupt St. Paul & Pacific as Jim Hill's Folly. They had a new folly to discuss when it became apparent that the Manitoba was headed for Puget Sound. Other transcontinental lines, they pointed out, had been built with recklessly liberal federal land grants and huge government loans. Here was Jim Hill proposing to take another railroad to the coast without one cent's assistance from Washington. This new insanity completely eclipsed all his previous mad acts. He was headed for a smash-up.

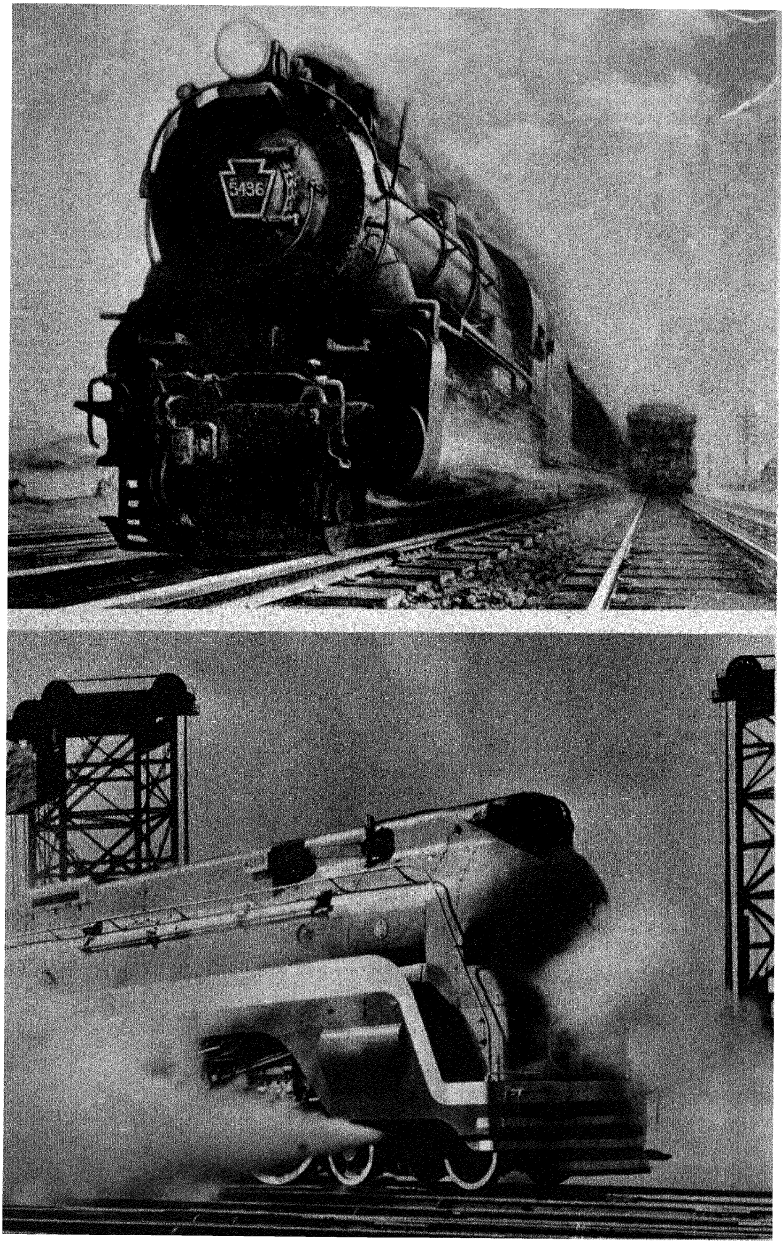
The pessimists overlooked a few essential facts. They failed, for example, to note the type of railroad Jim Hill was building. Easy grades and an elimination of curves permitted him, as his rivals discovered later, to operate at a profit in periods of depression while less carefully planned systems were being forced into bankruptcy. Also, his financial policy was as sound as his engineering strategy. Throughout this period Hill paid 6% dividends on the Manitoba stock. His earnings justified a far higher return to shareholders, but the head of the road was peering into the future. After covering fixed charges and the 6% dividend, all surplus income was carried into a reserve guarantee fund. Thus, the Manitoba always had a large supply of cash for emergencies. It was not obliged to borrow from banks or issue bonds for temporary needs. This advantage, of course, was not enjoyed by roads with a more liberal dividend policy.

As sometimes happens, foreign investors saw facts in the Manitoba situation that were completely overlooked by the people who rode the line. In 1886, when Hill required $5,000,000 for new construction, the bankers volunteered to take a 4½% bond. Their advertising stated that the St. Paul, Minneapolis & Manitoba was operating 1,509 miles of completed road, with 340 additional miles under construction and almost finished. These 1,849 miles of roadbed had a funded debt of $32,636,000, or less than $18,000 a mile. The capital stock was only $20,000,000 and there was no floating debt. Moreover, the company still held 2,289,000 acres of the original St. Paul & Pacific land grant. Sales of this land in the previous fiscal year had averaged $5.30 an acre. This put twelve additional millions behind the $32,000,000 funded debt. It is not surprising, therefore, that at a time when other American railroads were issuing 7% bonds, the $5,100,000 Manitoba 4½s allotted to Europe were more than five times oversubscribed. This financing, it might be well to remember, came just nine years after the day when four nervous promoters trembled as they signed a note for $280,000 at the Bank of Montreal.

One of the odds and ends picked up by the Hill group in their original St. Paul & Pacific purchase was a tiny rail unit, called the Minneapolis & St. Cloud, to which Minnesota had granted an exceedingly flexible charter. Careful study of the powers possessed by this small subsidiary convinced its owners that it might prove a valuable weapon. On September 16, 1889, the Manitoba



THE EVOLUTION OF THE DRIVER'S PERCH. (Above) "The Pioneer," first locomotive disclosed to admiring Chicago eyes and (below) the interior of a modern cab.



WITH AND WITHOUT THE FACE-LIFT. A Pennsylvania locomotive (above) running two miles a minute and (below) the iron horse goes streamlined to haul the Santa Fe's "Chief."

stockholders authorized a change of name. The Minneapolis & St. Cloud became the Great Northern Railway Company. On November 11, this imposingly named tail of the Manitoba dog took over the parent road under the terms of a 999-year lease that guaranteed interest on the Manitoba's outstanding bonds, or subsequent bond issues. The agreement further provided that the Great Northern would assume payment of 6% dividends on the Manitoba's $20,000,000 capital stock and would pay all taxes and assessments levied against the larger road.

This arrangement went into effect on January 31, 1890. Four months later, on June 9, the Great Northern "requested" the Manitoba to build a western extension from any suitable point in Montana to Puget Sound. Work was begun in August, and was completed in the summer of 1893. While other roads, victims of the panic of '93, were drifting rapidly into bankruptcy, Jim Hill announced through train service from St. Paul to Seattle. His financial and engineering methods were vindicated. He continued to pay full dividends on his stock while his rivals defaulted in the interest due on their bonds. His fifteen years' war with the Northern Pacific had come to an end. The bankers for that road promptly inaugurated negotiations with the managerial genius of the Great Northern Railway. They asked Jim Hill to take over his competitor and breathe into it the earning ability he had developed in his own transportation system. The outcome of these talks was the birth of the Hill Lines.

James J. Hill was a railroad builder in the best sense of that phrase. While he carried his tracks into new territory he concentrated his brains and energy on the problems of his new patrons. He realized, as many of his rivals did not, that the fortunes of his rail properties were wedded beyond possibility of divorce to the welfare of the people he served. That is why he became a scientific agriculturalist and an expert stock breeder. He knew more about railroads than any head of a rival operating department, and more about crops than the farmers who shipped grain over his tracks. His paramount ambition was to impart some of this knowledge to the shippers who paid the freight.

From the moment he became the head of the St. Paul & Pacific, Hill waged an unceasing battle for crop diversification in the Northwest. He preached continually on the perils of a one-crop program. Arguing against his own freight traffic, he urged the farmers to feed wheat to stock when prices were low, and take their profits in beef and pork. The early settlers imported scrub cattle and hogs because they were cheap. Hill bought a farm on the outskirts of St. Paul and demonstrated the dollars and cents value of improving the breeds. He imported more than eight hundred Shorthorn and other purebred bulls from Great Britain and gave them to farmers. He paid as high as $5,000 a head for some of his prize importations. In a period of six years he distributed more than six thousand blooded cattle and hogs to the farmers of the Northwest.

This reckless generosity bred suspicion in rural breasts. The recipients of his gifts were convinced that Jim Hill was trying to put something over on them. They proposed to stick to wheat. They discovered, however, that calves sired by the imported bulls could be sold for $5 or $10 more on the market than ordinary yearlings. That was quite enough to dictate a policy that appealed to their mentality. Thereafter, they sold the prize calves for beef and kept the scrub calves for breeding.

CHAPTER XVII

Rail Barons Meet Their Master

A dark-eyed, heavy-set, scowling youth stood opposite the old Lord's Court Building in New York City on October 13, 1857, staring with amazement at the frenzied antics of a fear-crazed mob. Outstanding citizens from aristocratic homes in Pearl, Beaver, Water, Broad and Whitehall streets were milling and shouting before the closed doors of smashed banks. Through the windows across the street the lad fresh from London could see members of the New York Stock Exchange, clad in the tight-fitting pantaloons, gaudy "weskits," stranglehold stocks and chimney-pot hats of the period, struggling, wrestling and overturning tables and chairs as they fought to sell scraps of paper at any price. Oaths and sobs and exclamations of dismay were blended in a discordant chorus that offended the ears of the haughty young mercantile clerk as he watched his first panic.

The money center of the United States was staging on this Indian Summer day the dramatic climax of a reckless era. The discovery of gold in California just eight years before, a successful war against Mexico, the annexation of Texas, the development and exploitation of the Middle West and a temporary overabundance of cash and credit had set too fast a pace for an adolescent nation. Paper fortunes based on boom-time business, mushroom banks and wildcat railroad ventures bred an epidemic of extravagance. This premature new era, a prophetic forerunner of our own mad nineteen-twenties, was reflected in prodigal spending at Delmonico's, the Astor and the Irving House, against which Horace Greeley thundered in the *Tribune*. And then came Andrew Jackson's declaration of war against the economic royalists of his day, his smashing of the national bank in Philadelphia, the defaults in interest on canal bonds, the bankruptcy of overcapitalized corporations and, at last, an inevitable rush to exchange artificial assets for actual hard cash.

John Pierpont Morgan never forgot the thirteenth day of October, 1857. It was a profitable object lesson to him in the boom periods that prefaced the panics of '73 and '93, from which he emerged the supreme overlord of American railroads. His thoughts must have reverted to this first view of a money market under fire when, thirty-eight years later, he sat all night playing solitaire in a bedroom at the old Arlington Hotel in Washington, waiting for a call from Grover Cleveland and an authorization to stop a fatal drainage of gold from the United States Treasury.

Young Morgan, fresh from a German university and an apprenticeship under his father's eye in an English banking house, was just twenty years old when he returned to America in 1857 to study the financial problems and possibilities of his native land. He began his business career on this side of the Atlantic as a junior clerk in the firm of Duncan, Sherman & Co., New York representatives for George Peabody and Junius Morgan, mercantile bankers operating as Peabody & Co., of London. Three years after his exciting debut in a new financial world, his father asked Duncan, Sherman & Co. to take the boy into partnership. They refused. This was an understandable mistake. The newcomer had not created a favorable impression. He was gruff, reserved and snobbish. His genius for the mathematics of finance had found no outlet. There was nothing in his brief record to inspire a suspicion that he was destined to become America's most famous banker. Nevertheless, the rebuff irritated Junius Morgan. He ordered his son to set up an office for himself. A few days later a modest sign on the door of a second-floor room at 50 Exchange Place, across the street from the New York Stock Exchange, displayed the name of J. P. Morgan.

The future head of the House of Morgan made few friends and no history in his first years as American correspondent for a famous London establishment. In 1864 he changed the sign in front of his office. The new name on the door was Dabney, Morgan & Co. His partner, blessed with a pleasing personality, was a decided asset to the firm. Morgan offended all visitors. He was inscrutable, repellent and discourteous in his speech. Although just past his twenty-seventh birthday, his heavy figure and a bristling mustache made him look much older. He worked hard and became an outstanding authority on foreign exchange, but his method of greeting visitors lured no clients to his desk. And yet, curiously enough, one astute observer saw in him certain qualities which might prove valuable to a little outfit with a fight for life on its hands. When the harassed directors of the Albany & Susquehanna appealed for advice to Sam Sloan, that veteran railroad expert said:

"Go after young Morgan. I think he's the man you want."

This first rail adventure was a severe test of the youthful financier's ability and bulldog courage. It pitted him against Jay Gould and Jim Fisk. The Albany & Susquehanna, 142 miles long, connected the Erie Railroad at Binghamton with various lines to the west operating out of Albany. The Erie managers, not handicapped by any scruples, were out to get the little road under the terms of a pirate code. Pierpont Morgan dug in at Albany, fought Gould successfully through the courts and was ready and waiting for Jim Fisk when that flamboyant gentleman arrived with a gang of hired thugs to take the Albany & Susquehanna by force. Fisk was kicked down the steps leading to the little railroad's general offices and placed under arrest by a man in a policeman's uniform who happened to be strolling by. This convenient trouble shooter was, of course, a railroad man on Morgan's pay roll.

Jim Fisk retreated to Binghamton and assembled an army of several thousand heavily armed Erie employees and friends. Morgan organized an equally strong force for defense and threw the invaders for a heavy loss. Then, backed by the authority of the courts, the Albany & Susquehanna directors turned their little line over to the powerful Delaware & Hudson Canal Company under the terms of a long lease which guaranteed 7% dividends for a specified period of years, and 9% thereafter. The stock promptly jumped from 18 to 120 on the New York Exchange. Since Morgan's fee was 5,000 shares of the equity he had snatched from Jay Gould's greedy hands, his remuneration for those few exciting weeks in Albany was considerably better than $500,000.

Morgan gained a reputation more valuable than his fee when he beat Fisk and Gould at their own game. The Street decided it might be well to maintain a friendly relationship with this hard-hitting young banker. There was an additional incentive in the fact that his position as representative for his father soon began to loom big in the international picture. George Peabody died in 1869. His firm had been succeeded a few years before by J. S. Morgan & Co., 22 Old Broad Street, London. In the following year, a Prussian army defeated Napoleon III at the battle of Sedan and the German government demanded a huge indemnity. Paris turned to London for financial help and J. S. Morgan & Co. offered to underwrite a $50,000,000 6% loan at 80. The issue proved a huge success. The bonds rose swiftly to par and the bankers cleaned up a profit of $2,500,000 on the deal.

This achievement intrigued Drexel & Co., of Philadelphia, outstanding rivals of Jay Cooke & Co. The Drexels made overtures to the Morgans. In 1871 Dabney, Morgan & Co. was dissolved and Drexel, Morgan & Co. came into existence. The new firm bought the southeast corner of Broad and Wall streets at a cost of

$349 a square foot and erected the seven-story white marble building which soon became famous as "Twenty-three Wall Street" and which is still, seventy years later, the House of Morgan. It was in this historic building that Jay Cooke's rivals planned their strategy to cut in on the Cooke underwriting of government bonds. In 1873 Drexel, Morgan & Co., in alliance with Morton, Bliss & Co., entered a bid of par for a $300,000,000 5% U. S. Treasury refunding issue. This matched the proposal made by Jay Cooke & Co., backed by the Rothschilds. Consequently, George S. Boutwell, then Secretary of the Treasury, allotted $150,000,000 to each of the competing groups. Discouraged by loss of prestige, Jay Cooke turned to railroad financing and Drexel, Morgan & Co. consolidated their gains.

Pierpont Morgan did not venture on his own initiative into his original railroad deals. The Albany & Susquehanna directors sought him out in 1869. Ten years later another troubled railroad executive turned to him for guidance. This second incident may be recorded as the real genesis of major activities which ultimately made the House of Morgan the world's foremost rail bankers. William H. Vanderbilt, who inherited the New York Central System from his father, the Commodore, owned nearly 90 per cent of the common stock. The carrier was, therefore, known as a one-man road. Some unfriendly critic circulated the historic story of a petulant remark attributed to the new head of the Vanderbilt Lines. The victim of this yarn always hotly denied that "public be damned" anecdote, but nobody believed him.

He was hated by shippers and passengers. The New York State legislators began to discuss the possibility of taxing his railroad out of existence.

Vanderbilt brought his problem to Morgan. If he could shift out of a big percentage of Central stock and divide ownership of the road with neutral interests there would be, he felt sure, a cessation of the persecution that was getting on his nerves. He wanted to unload 250,000 shares. Could Morgan place so big a block, and, if so, where?

"Yes," was the gruff reply. "I can put that stock in the hands of English investors. I will do so on two conditions. You must guarantee the present 8% dividend for a five years' period and you must permit me to represent my clients on your board."

The president of the New York Central was amazed by Morgan's calm assurance.

"If I agree to your terms," he asked, "at what price can you place the stock?"

"At the last market sale—$130 a share."

Vanderbilt closed the deal and Morgan cut loose in London. A few weeks later the story leaked that William H. Vanderbilt had transferred $32,500,000 of his New York Central ownership to British interests and invested the proceeds of the sale in United States government bonds. This ended newspaper criticism and legislative threats. Morgan was elected to the Central directorate and his firm banked Vanderbilt's check for $3,000,000 as a commission for handling the sale. "Twenty-three Wall Street" stepped to the front as rail financiers and the head of the house probably wondered why he had overlooked for more than a decade the logical deductions he should have built on his first successful fight in behalf of a railroad in trouble.

Morgan picked a psychological moment to invade the transportation field. The late seventies and early eighties saw an era of wholesale stockjobbing, crooked speculation and unrestrained railroad banditry. The most sinister figure throughout this period was Jay Gould who, in 1873, transferred his activities to the West. Horace Clark, a son-in-law of Commodore Vanderbilt, bought a big interest in Union Pacific and in March, 1872, was elected president of the road. When he died a year later, his stock was thrown on the market and Jay Gould picked it up. At the end of the panic which terminated his debauchery of the Erie Railroad, Gould continued to buy Union Pacific stock at prices ranging from 25 to 30. In 1878 he owned more than 200,000 shares, which gave him complete control of the road. As a first step in a purely private plan he put Union Pacific on a liberal income basis. Nearly $29,000,000 was paid out as dividends between 1875 and 1884. Naturally, the stock went up. When it began to climb above 70, Gould quietly unloaded more than 170,000 shares at a tremendous profit. His rake-off, aside from the big dividends he paid himself, was estimated by experts of the day at a figure in excess of $8,000,000.

The proceeds of these sales went into the common stock of the Kansas Pacific, a line from Kansas City to Denver built on the theory that it might some day become a real rival of the Union Pacific. Gould began buying K. P. common at 12 in 1878. In 1879 he owned $4,030,000 of the total $10,000,000 stock capitalization. He also took on big blocks of the road's depreciated bonds. When he was ready for the kill he proposed a merger of the Union and Kansas Pacifics.

This proposal, as he expected, was promptly turned down. Whereupon he announced his intention to extend the Kansas Pacific to Ogden and to launch a rate war that would wreck the Union Pacific. As an additional ace in the hole he bought the Missouri Pacific, which gave him a continuous line from St. Louis to Cheyenne. The trap was set and the Union Pacific was sitting on its jaws. On January 14, 1880, at a meeting held in Gould's New York residence, the badly frightened Union Pacific managers surrendered. They agreed to merge the three roads into a new Union Pacific Railway Company. The capital was fixed at $50,762,300, which was the exact total par value of the stocks outstanding against the three roads. The swapping of new certificates for old was on a share-for-share basis. Gould was, of course, elected to the new board and the consolidated common stock began paying six and seven per cent dividends. When the shares that cost him $12 each, climbed to a range between 100 and 130, the astute Jay Gould did another quiet unloading job and severed all connections with the Union Pacific Railway. Tainted fortunes were rolled up in this country with the greatest of ease in the final quarter of the nineteenth century.

Morgan went to England in the spring of 1885 for a discussion of American securities sold through his London office. He found British investors in an angry mood. At the end of the five years' guarantee period, the New York Central had chopped its 8% dividend in half. A majority of American railroads were drifting into bankruptcy. Construction of new lines to parallel and compete with established roads had become the most popular racket of the day and was proving a highly profitable form of hijacking. Five lines were fighting for business between New York and Chicago. Rate wars were raging. A few of the more reckless roads moved freight at less than half the actual cost and carried passengers a thousand miles for a dollar a head. When Morgan stepped off the boat in New York he was told that the two most powerful roads in the East were making war medicine and issuing ultimatums.

William H. Vanderbilt, recently sandbagged into buying the Nickel Plate at a prohibitive price to protect his line of communications to Chicago, was raging over a fresh threat much closer home. The newly organized West Shore Railroad, busily laying rails up the Hudson, was a short-range menace to his New York Central main line on the other side of the river. Commodore C'neel's son, suspecting a secret understanding between this little upstart and his most powerful railroad rival, was openly backing the South Pennsylvania, a line frankly planned to parallel some of the old Pennsylvania's most profitable rails. The time had come, in the banker's opinion, for a heavy hand against these highway holdups which threatened the standing of the House of Morgan.

His first move was a heart-to-heart talk with Vanderbilt. By sheer mental force he sold him the idea of buying the West Shore and adding it to the New York Central System. Simultaneously, Morgan insisted, Vanderbilt must agree to sell control of his southbound spite line to the Pennsylvania Railroad. With one battler under his hypnotic influence, Morgan turned the heat on a more difficult man to handle. George H. Roberts, President of the Pennsylvania, was fighting mad. He had sworn he would not bury the tomahawk in anything less tempting than William H. Vanderbilt's head. The rough-and-ready Pennsy chief, who had worked his way up from a laborer's job, was not interested in peace pipes. He was out for blood.

Morgan set the stage for a showdown. He invited Roberts to lunch aboard his yacht, the *Corsair*. The only other guests were Frank Thomson, Vice-President of the Pennsylvania, and Chauncey M. Depew, President of the New York Central. At the end of a well-planned meal, the *Corsair* up-anchored for an afternoon's cruise. In accordance with a prearranged plan, the extraordinarily charming Depew opened fire on the guest of honor. He said the Central was prepared to eat crow. His directors were willing to absorb the West Shore Railroad and sell the South Pennsylvania to its logical buyer at a really enormous loss.

Roberts was not interested. He refused, he said, to be blackmailed. He was aching for a fight to the finish. He sat in scowling silence while Depew proffered physical proofs to back his arguments, and exhausted the possibilities of persuasion. When darkness descended and the *Corsair* shifted her course for a home-bound run the plot seemed doomed.

Then Morgan took a hand in the game. Vanderbilt's road, he observed, was willing to take a terrible beating. It would lose millions on a sale at the price proposed to the Pennsylvania. It was up to Roberts to make a swift decision. He could buy out competition now at an absurdly low figure. Later, if he remained obstinate, there would be no choice. He would have to evolve some costly plan to protect vitally important connections. The threat was obvious. Roberts thought while Morgan smoked another black cigar. After a prolonged and painful silence the head of the Pennsylvania rose to his feet.

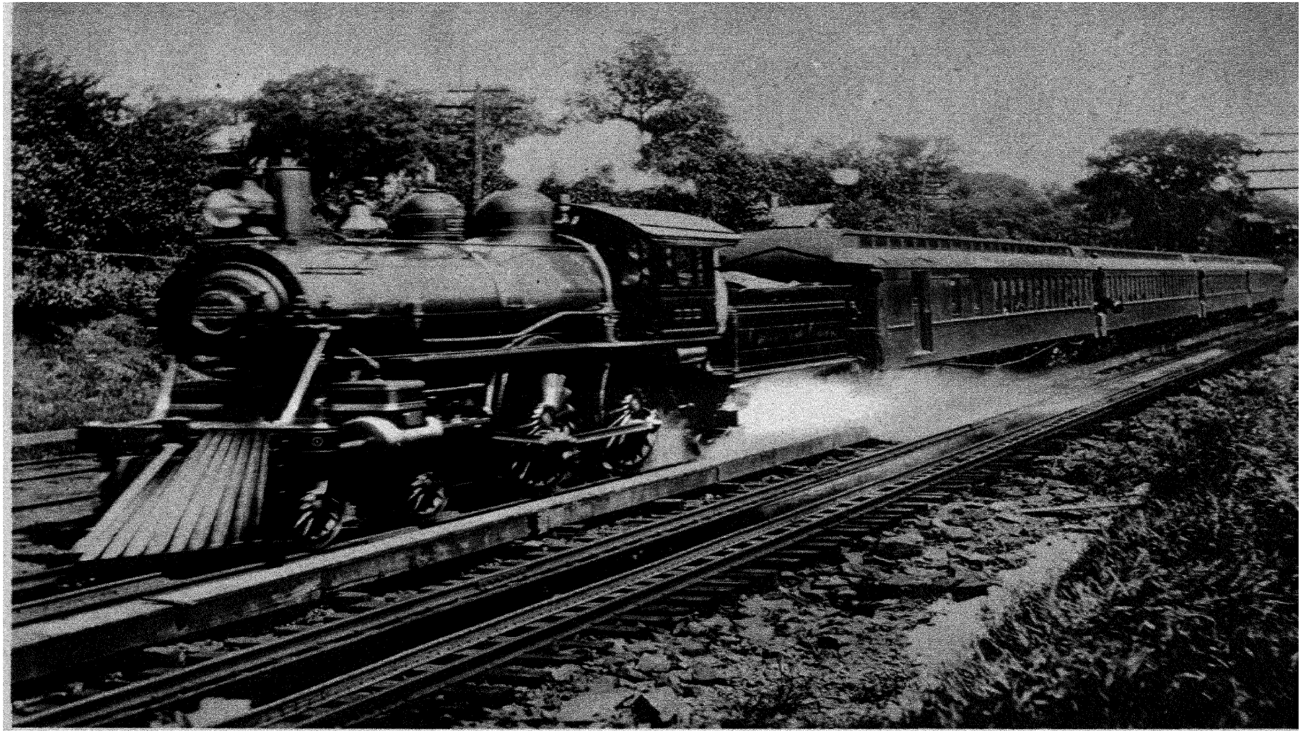
"All right," was his sullen surrender. "I'll buy the road."

This treaty of peace was merely a beginning. Throughout 1886 Morgan arranged conference after conference in his brownstone residence at 219 Madison Avenue. He gave delicious dinners to innumerable rail executives, but the black coffee was invariably followed by straight-from-the-shoulder talks. The banker demanded a cessation of hostilities. He sponsored two plans to end railroad wars. One was Cassatt's much discussed "Community of Interest." The other was Morgan's equally famous "Gentlemen's Agreement." He would protect the carriers by control of the money market against the construction of parallel roads, but only if they put an immediate stop to secret rebates and disastrous cost-cutting competition. He aroused the wrath of his guests when what might have been advanced as diplomatic suggestions became blunt and imperative orders. Some heads of big systems resented his words and manner. They did not propose, they said, to let Morgan tell them how to run their roads.

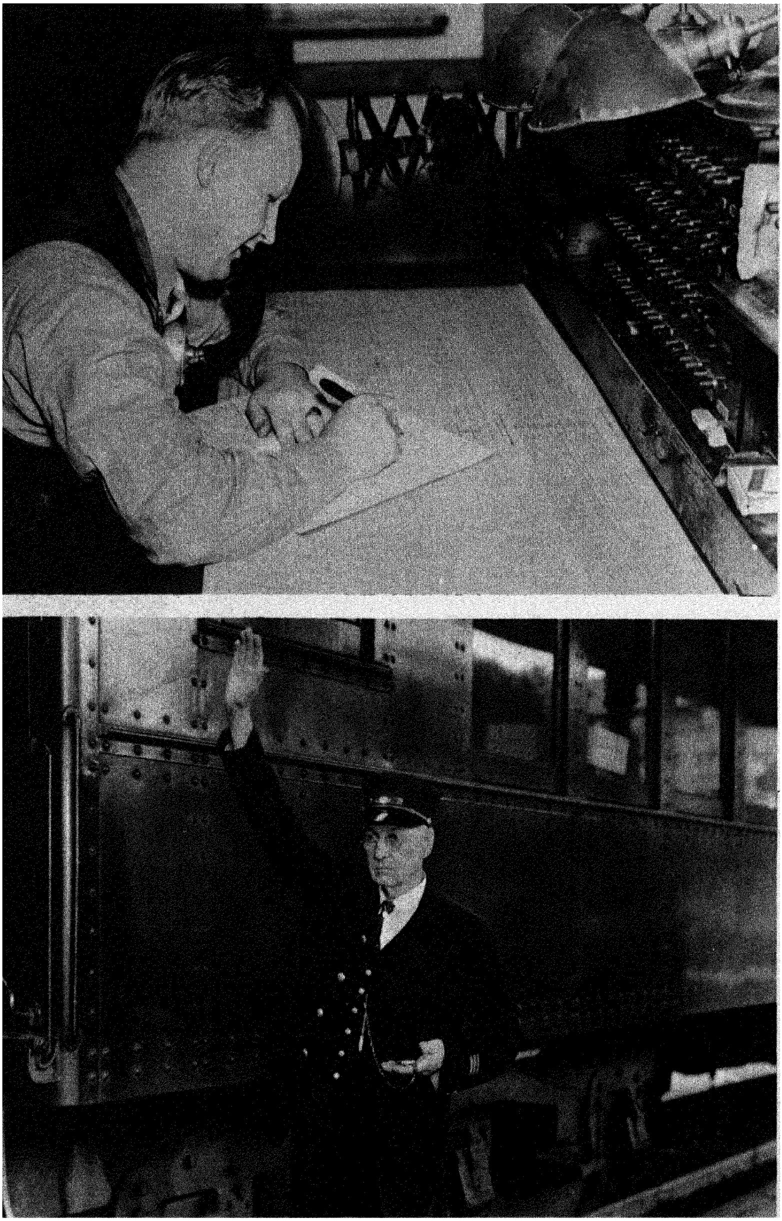
"Don't talk to me about *your* roads," Morgan blazed back. "They belong to *my* clients."

In January, 1889, Morgan invited the chiefs of eighteen big carriers to a dinner which prefaced his creation of the Interstate Railway Association. His guest list included the senior partners of Drexel, Morgan & Co., Brown Brothers and Kidder, Peabody & Co. These were the Big Three in the group of underwriters specializing on rails. As a last incident of the evening the host made a brief and almost brutal speech. He laid down the law to his picked audience of railroad barons. They would stop fighting, he said, or they would stop getting financed.

The presidents of two totalitarian roads decided to call what they considered a bluff. Henry S. Ives, head of the Vandalia, a system built around the old Cincinnati, Hamilton & Dayton, and Robert Garrett, ruler of the Baltimore & Ohio, got their heads together and launched a brand-new railroad war. Their first aim was to freeze the Pennsylvania out of St. Louis and all the adjoining area. Their activities soon came to an exceedingly abrupt end. The conspirators found it impossible to obtain funds from any source for the financing of their extension plans. Morgan had perfected a gentlemen's agreement of his own with the American banking community.



The old order stoppeth, yielding place to new, when oxen and cotton encounter a streamlined train in the heart of Dixie.



(Above) The man who must always be right. A train dispatcher making up his sheets for a traffic rush on a main line division. (Below) The train conductor gives his engineer the "highball," a phrase born in pioneer railroad days when a white ball at the top of a tall pole was the accepted signal for a clear track ahead.

Ives and Garrett, stopped in their tracks, were forced to sue for peace.

The next Morgan move broke the back of railroad rebellion. This bit of strategy was his introduction of the voting trust plan. He gave it a preliminary trial in 1887 when the Reading went into bankruptcy. He agreed to reorganize the road, but only if he was given absolute control. A majority of the stock must be put into a trust which J. P. Morgan & Co. would vote. A perfection of various details in the operation of his invention throughout the next few years brought order out of chaos. The success of this expedient led to the creation of the Southern Railway and the consolidation of the New York, New Haven & Hartford System. It also made J. Pierpont Morgan the supreme tzar of the transportation industry with autocratic one-man authority over the most important railroads in the Western World.

The Reading's financial mishap was a direct result of the road's reckless attempt to invade the New England area. This was J. P. Morgan's home territory, and the New York & New Haven was his special railroad pet. Fearing future raids, he turned to the north and inaugurated a series of purchases and absorptions that brought a new giant into the transportation arena. His consolidation of innumerable units into the modern New York, New Haven & Hartford Railway was a huge undertaking. As a first step, he merged the Old Colony Railroad with the New York & New Haven. This consolidation took over every rail in Rhode Island, all roads in Massachusetts south of Boston and every line in Connecticut except the Central Vermont. The Boston & Maine was soon thrown into the pot. Then came in quick succession outright purchases of steamship companies operating between New York and Boston and the acquisition of every strategic trolley and interurban line that might conceivably swell the New Haven's traffic. As a final precaution, Morgan obtained for his pet a substantial working interest in the Boston & Albany and the Rutland Railroad. These moves, he felt, would give his New England protégé an absolutely impregnable position.

His next objective was the deep South. The panic of '93, which plunged nearly a third of America's railroad mileage into bankruptcy, was particularly unkind to business activities below the Mason and Dixon Line. More than 30 small roads in the South operating under the control of the Richmond, Danville & Southern went to the wall. The job of refinancing this tangled group was turned over to Morgan's busiest partner, Charles H. Coster, former accountant in an old shipping firm, afterwards director of 59 big corporations and an absolute genius in the art of juggling figures. Coster labored day and night for three or four months and submitted to the head of the firm a detailed plan for a complete reorganization of the far-flung units. Foreclosures on about 25 of the little roads were rushed through the courts, and out of the wreckage came the present Southern Railway, with a drastically revised funded debt. Coster's job was well done. In its first year of operation this complicated consolidation earned more than $3,000,000 on the new capitalization.

The Southern Railway began life on July 1, 1894, with approximately 2,000 miles of track. On June 30, 1900, it was operating 56 wholly owned units, which had come into existence with the aid of 90 different charters, and 12 auxiliary lines with the right to boast 19 additional incorporations. The total trackage on the sixth birthday of the swiftly built system was exactly 7,716.56 miles. These right-of-ways crisscrossed the South. One of the most interesting divisions of the network, built more than three-quarters of a century ago as an outlet for civic pride, is still known as the "Queen and Crescent Route," an affectionate nickname bestowed on the road in the days of its infancy.

When the Louisville & Nashville was opened for traffic in 1859 the chief city of Kentucky advertised successfully this connection with the South. The new locomotives began to haul traffic captured from Ohio and Mississippi river steamboats. This alarmed Cincinnati, which saw an end of its profitable trade with St. Louis and New Orleans. The Queen City decided that she, too, needed a railroad. Unfortunately, the laws of Ohio forbade her to grant aid to any rail enterprise. Patriotic city fathers fumed over this *verboten* until a young lawyer named Ferguson came to the front with a constructive idea. Cincinnati, he conceded, could not contribute to railroad construction. There was nothing in the law, however, to stop Cincinnati from building a road all her own. A mere hint was sufficient. The Ohio metropolis began turning up dirt.

The first stretch of track was built to Knoxville, Tennessee, and proved an exceedingly fine job. The roadbed was well laid, the first cantilever bridge in American history was thrown across the Kentucky River and the longest truss span known to engineers of the period took the new line's rails over the Ohio. These high standards called for heavy expenditures. Cincinnati's private railroad cost the taxpayers something more than $18,000,000. This proved almost too heavy a load. The enterprising community was compelled to extinguish street lamps on moonlight nights to help pay the interest charges on its big railroad debt.

Nevertheless, the line to the South was a profitable investment. Aside from the business it brought the city, the venturesome project soon began to turn into the municipal treasury a substantial annual income. The road was leased on September 3, 1881, to the Cincinnati, New Orleans & Texas for a period of twenty-five years. Rentals rose steadily from $800,000 to $1,250,000 per annum, plus full payment of taxes. This lease was subsequently taken over by the Alabama Great Southern, which the Morgan consolidation acquired on November 1, 1895. The Southern Railway now holds a 99-year lease on the Queen & Crescent (Cincinnati to New Orleans) for which it pays a rental of a million and a quarter a year, plus 2 per cent of net profits. This amount will be increased to $1,350,000 per annum and 3 per cent of the profits in 1947. These rentals have repaid the total cost of the road considerably more than four times over since Cincinnati decided in 1859 to take a long shot in the dark at a decidedly original type of civic speculation.

Morgan missed his chance to refinance the Union Pacific in 1894. He was busy at the time on reorganizations of the Northern Pacific, the Erie, the Lehigh, the Richmond & Danville and numerous other bankrupt railroads. In 1898 the various carriers listed as Morgan roads operated trains on 33,000 miles of track. This was approximately one-sixth of the nation's total. And then, just after the turn of the century, the load was heavily increased. In April, 1902, John W. (Bet-you-a-million) Gates staged a spectacular bear raid on the New York Stock Exchange and emerged from the foray with absolute control of the Louisville & Nashville Railroad. This shift in ownership alarmed J. P. Morgan. He felt that a Gates-owned line through the South might prove an unwholesome rival for his Southern Railway. He told one of his partners to buy the road. This emissary routed Gates out of his bed in the Waldorf-Astoria at three o'clock in the morning and explained his mission.

"O.K.," said the plunger, rubbing his sleepy eyes. "You people can have the road. But it means a bonus of $10,000,000 over the cost of the stock to my friends and myself."

Morgan paid.

He had, however, a definite spot for his new acquisition. He had just formed a working alliance with Henry Walters, President of the Atlantic Coast Line. The new associates merged the L. & N. with the A. C. L., took over the Plant System in the Far South, bought the Monon Route to give their line an entrance into Chicago and thus rounded out another major system. The

Atlantic Coast Line trackage jumped from 2,100 to 11,000 miles in less than a year. With this job completed, J. Pierpont Morgan, junior mercantile clerk of 1857, now dominated the transportation facilities of New England and the South, the Northwest and most of the East. He saw his roads stretch without a break from Boston to Seattle, from St. Paul to Mexico and from the St. Lawrence River in the North to the Gulf of Mexico in the South. His word was law wherever American traffic experts met to discuss the problems of modern transportation.

CHAPTER XVIII

The West Calls for a Hand

Practically all of San Francisco's eleven-year-old population was out in gala mood immediately after the midday meal on April 3, 1860. The more fortunate members of the assemblage occupied front-rank positions surrounding the Alta Telegraph Company offices in Montgomery Street. Their eyes were riveted on Jimmy Randall and the swift little pony he stood ready to mount. Both horse and rider presented an exceedingly colorful appearance. The young bronchobuster, as self-conscious as a modern Hollywood novice, was clad in a vivid red shirt, a fringed buckskin jacket and highly polished boots that reached almost to his belt. His nervous mount, a really beautiful animal, had been curried and groomed until, as the local press pointed out, it displayed a coat of hair as smooth and shiny as pongee silk.

Clock hands were close to the hour of four when a messenger emerged from the telegraph offices and threw a pair of leather saddlebags to the waiting caballero. This official pouch contained eighty-five written communications addressed to various points in the East. The patriots who penned these epistles had laid on the line an even $5 in gold for every letter in the collection, thereby establishing themselves as the first Pacific Coast patrons of a fast mail service across the continent. Randall swung into the saddle, drove his spurs into the flanks of his excited pony and rode full speed down San Francisco's sloping streets to the waiting *Antelope*, the fastest steamboat afloat on California's inland waters. Shrill blasts from the whistle ordered a casting off of lines as horse and rider clattered up the gangplank to the accompaniment of frenzied cheers from the passengers lining the rails. The paddles churned, the pilot whirled his wheel, the vibrating craft swung into her course for Sacramento and the first pony express rider in history was off for the Missouri.

This event was born of a careless wager made in Washington only a month or so before. Major Russell, legislative representative for Russell, Majors & Waddell, owners and operators of the Central Overland California and Pike's Peak Express Company, running trains of prairie schooners from St. Joseph, Missouri, to Salt Lake City, Utah, was inclined to boast about the possibilities of cross-country speed. Some of his claims seemed fantastic to skeptical auditors in the nation's capital. They jeered at Russell's assertions and cited previous instances of Far West boasting. Thoroughly nettled, the Major pounded his fist on his favorite bar and shouted:

"I can put the mail through from Missouri to California in an even ten days."

The cynical Washingtonians merely smiled.

"And I'll bet you $10,000 in gold I can do it," the Major roared.

Thus, according to accepted legend, the famous Pony Express was born. And that is why in the late afternoon of an April day just twelve months before the outbreak of the Civil War, Jimmy Randall raced his pongee-silk pony through the streets of San Francisco, and two and a half hours later Johnny Frey swung himself to the back of a fine bay mare, sprinted to the ferryboat *Denver*, crossed the Missouri in record time and rode at the top of his speed to Seneca, Kansas. This was the western terminal for the first lap in a carefully laid-out route to California. Under the terms of the wager, if either bag reached its destination before the bells chimed midnight on April 13, 1860, Major Russell stood to cash a $10,000 bet and the Post Office Department was prepared to assign a valuable contract to a new and exceedingly spectacular service. These double stakes justified the reckless speed the riders were required to make in their relay race across two-thirds of a continent.

The ceremony in Montgomery Street was merely a stage effect. The dash for the East actually began at midnight in the capital of California. When the San Francisco boat reached its Sacramento dock late at night in a drizzling rain, Billy Hamilton, the first real Pony Express rider from the West, was waiting at the wharf, soothing the impatience of the fastest bit of horseflesh available that year in the Golden State. The new rider caught the bags which Randall tossed over the rail, strapped them swiftly into position, mounted his pony and was off with a rush through the darkness and rain.

His first stop was Placerville, a community known to fame as Hangtown in the strenuous era of vigilante activities. The local lariat aristocracy cheered Hamilton on to success as he mounted a fresh horse and faded into the night. Notwithstanding the rain and slippery roads, he was almost on time when he pulled up at Sportsman's Hall, 60 miles east of Sacramento. Here, at the end of his run, he passed the torch to Warren Upson, daredevil son of a Sacramento editor, who was waiting for the mail and ready for the mountains.

This second lap, over the top of the Sierras, was the toughest stretch on the trail to the Missouri, and local miners were betting heavily against the number two rider's ability to work his way through a heavy spring snowstorm that had stopped all stagecoaches. They lost their gamble. Half a dozen sturdy ponies, selected for endurance—not speed—had been placed at strategic points along the sky-line route. Nevertheless, Upson was forced to walk part of the time, steering his mounts around the drifts and battling the storm. It was a punishing test of his nerves and muscles, but he fought his way through the snow, passed over the Sierra peaks and raced at breakneck speed down the eastern slope of the mountains. The Pony Express was on time when the last rider settled down in the saddle for his final dash to the banks of the Missouri.

Sacramento did not share Hangtown's pessimistic theories about the possibilities of the experiment. The California capital made elaborate preparations to provide a rousing reception for the debut of the westbound Pony Express. At 5.45 in the afternoon of April 13 a deputation of mounted citizens rode out to meet Billy Hamilton, who had blazed the trail just ten days before. They paced his speed as he raced to the river front. A cannon boomed, fair spectators fluttered dainty handkerchiefs, hats were swung and piercing yells of exultation split the air as the final rider in the first dash to the coast pulled up with a flourish at the doors of the Pony Express Agency and deposited "mail just ten days out of St. Jo." Six hours later the idol of the hour rode up Market Street in San Francisco on his gayly decked horse, the central figure of a mammoth parade. Bands played "See, the Conquering Hero Comes," Jessie Benton, wife of the famous pioneer John C. Frémont, delivered a welcoming speech, bells rang, whistles blew, fire-rockets sizzled and the entire city joined in a tremendous tribute to the daring riders (not to mention their gallant ponies) who had brought the Missouri within ten days of the California metropolis.

There was need for swifter connections with the East when Major Russell made his $10,000 bet. California was coming to the front with a rush. San Francisco's amazing evolution from a frontier village to a hustling city might have been predicted with absolute assurance on Monday afternoon, February 24, 1848, when Henry W. Bigler, a Mormon carpenter building a sawmill for John Sutter on the American River about forty miles from Fort Sutter, wrote in his diary:

"This day some kind of mettle was found in the rail race that looks like goaled. First discovered by James W. Martial, the boss of the mill."

Bigler followed up this flash about ten days later with a second contribution to history:

"Our mettle has been tried and prooves to be goaled," he wrote. "it is thought to be rich. We have pict up more than a hundred dollars woth last week."

The Sutter Mill saw-and-hammer reporter may have entertained nonconformist ideas about grammar and spelling, but he unquestionably recognized an important story when it literally popped up under his own nose. A little more than one year later the great gold rush was under way.

History was made swiftly in the twelve years that followed the "Martial" discovery, but really important events of that picturesque period were not accompanied by any development of adequate transportation facilities. Mail still traveled to San Francisco by wagon and boat. A letter from the folks back East was many weeks old when it arrived in California. Consequently, the Pony Express was hailed as a brilliant if brief undertaking. "The mail's got to go through" was the new service slogan. It did. And it went through on time, notwithstanding the activities of Indians who shot the ponies and scalped an occasional rider. When Abraham Lincoln sent his first message to Congress in the spring of 1861, the boys on the overland trail took a transcript of his words from the Missouri River to the Pacific Coast in seven days and seventeen hours. That was the best run Major Russell's riders ever made. Seven months later a new and instantaneous method of communication wrote a death warrant for the famous Pony Express.

In 1857, three years before Billy Hamilton raced through the streets of Sacramento, Hiram Sibley, President of the Western Union Telegraph Company, put a daring proposal before his directors. If the other companies in the field would come in on the deal, why not extend the existing wire service to the Pacific Coast? His own official family was game, but the directors of other dot-and-dash merchants flinched from the very thought of tackling so radical an undertaking. Sibley rechecked his facts and figures and issued a statement to the press. The Western Union, he said, would go it alone.

On a June morning of 1861 a newly organized Pacific Telegraph Company rushed in where railroads had feared to tread. Two carefully picked construction gangs were swung into a fight against time. One outfit, under the command of Edward Creighton, headed west from Omaha. James Gamble led a force chosen to work east from Virginia City, Nevada. Each little army was allotted twenty-five to thirty ox-teams with two men to the wagon. Sibley told his captains he wanted quick results. As a stimulus to speed he offered a substantial cash prize to be split by the members of whichever group carried the first line into Salt Lake City.

The rival forces, planting poles and stringing wire as they moved, covered a two-thousand-mile trail across prairie, mountain and plain in a little less than nineteen weeks. The westbound expedition members had something more to combat than the forces of nature. The route they followed took them into the favorite hunting grounds of hostile Indians. These untutored original inhabitants watched the invasion with suspicious eyes. Something was rotten in Denmark, they decided, when paleface warriors began to plant dead trees and tie them together with queer little ropes that sang like birds whenever the wind blew hard.

This redskin reaction gave Creighton a valuable idea. He took the natives into his confidence. The new device, he explained, was a marvelous magic which the white men had received direct from the Great Spirit. It would carry an Indian's voice thousands of miles through the air in less time than an eagle would need to fly fifty feet. If his red brothers entertained any doubts whatever he would gladly give them a demonstration. Let Chief Washakie, of the Shoshones, whisper a message for one of his friends back on the banks of the Missouri. It would go to its destination far faster than thunder follows the lightning flash.

The Indians admitted that Creighton's proposal carried a punch. They agreed to suspend hostilities until they could put a rigid check on so amazing a claim. Before the second sun had set, complete confirmation was brought back by a swift Indian runner. The Shoshone message had been delivered more than a hundred miles away at the very moment it was whispered in Creighton's ear. This, Chief Washakie conceded, was unmistakable proof that for once, at least, the unpredictable palefaces had dug up some really big medicine. Two unplanned accidents soon strengthened this conviction. One curiosity-cursed brave picked up the end of a dangling wire and was thrown for a heavy loss. Shortly afterward an unconverted warrior stole the nitric acid from one of the batteries. Taking it for granted he had acquired a choice brand of paleface firewater, he attempted to stage a spree all his own. He survived the experiment, but he was an exceedingly sick Indian for several weeks. These painful mishaps, naturally, proved conclusively that the Great Spirit resented the red men's irreverence. After that, the telegraph builders had no more interference whatever from native sons. Going to the other extreme, the Shoshones volunteered their services in the white man's private quarrel with buffalo. These animals jumped to the conclusion that telegraph poles were ideal implements for scratching. The linemen put sharp spikes around the wire supporters, but this was right down the alley for itching members of the bison family. They flattened poles by the hundreds in the next few days. At the height of the crisis Chief Washakie's tribesmen took a hand in the game and broke up the sport. The vermin-infected and hump-adorned scratchers were speedily transmuted into a winter supply of well-jerked meat.

Gamble and his gang won the race to Utah. They planted their last pole in Salt Lake City on October 22, 1861. Creighton's crew arrived at the meeting point forty-eight hours behind. An immediate hookup was effected and within an hour the Honorable Stephen J. Field, Chief Justice of California, wired greetings and congratulations to Abraham Lincoln at the White House in Washington.

The overland stage, the Pony Express and the Western Union paved the way for transcontinental rails. Eight years after the telegraph wedding in Salt Lake City the Union Pacific began unloading California-bound passengers in Ogden. In the next two decades five great transcontinental lines were moving coast-to-coast traffic and several equally powerful carriers were splitting up trade in the Middle West. The Southern Pacific, holding the Union Pacific off on its eastern front, was grabbing everything in sight between San Francisco and New Orleans. Its Ogden connection, effectively blocked from California, was sending heavy trains along the old Oregon trail. Santa Fe traffic officials, alone in their glory, were routing passengers and freight over the one continuously owned line between Chicago and the coast. The Northern Pacific, concentrating on a war with its rivals at the south, was headed for absorption by a new foe in the north. Up along the Canadian border the well-managed Great Northern was piling up gold in a war chest designed for use in the next inevitable panic. This was the period when romance rode the American rails.

Meanwhile, four centrally located systems were digging in for a bombproof control of exceedingly valuable areas. The Burlington, prior to its merger with the mighty Hill Lines in the Northwest, was easily the best-managed road in this group. Its 8,700 miles of track and all its equipment were kept in superb condition. Its graduates became executive officials of rival railroads and its firemen and engineers were the aristocrats of the Brotherhoods. It maintained peace with its neighbors and plucked four-fifths of all business in sight. C. B. & Q. rails connected the Great Lakes with the Rockies and tied knots around Chicago, Kansas City, St. Louis and Denver. They bored through the Black Hills of the Dakotas and Wyoming, swapped passengers and freight with the Northern Pacific at Billings, followed the Missouri to its confluence with the Mississippi and, connecting the Twin Cities of Minnesota with the Triple Cities of Illinois, provided continuous through service from the Falls of St. Anthony to the environs of Cairo where the Ohio empties its quota into the Father of Waters. This was the picture that fascinated James J. Hill and induced him to pay $200 a share for stock selling on the Big Board at prices fluctuating between 160 and 180.

The Rock Island, keeping a calculating eye on the Burlington, threw a net of steel rails around the granaries of America. It picked up cotton in the South, corn and wheat in the Middle West, cattle from the valley of Missouri and the upper Mississippi, grain from Canada, hardwood from forests in the Southwest, mine products from Colorado and iron and steel from the Birmingham district. Tapping the most fertile farm lands in the nation, it routed freight to the Atlantic through every available Chicago outlet and carried a heavy percentage of traffic over its own lines of rails to tramp steamers at anchor in the Gulf of Mexico. Its publicity department created a record of efficiency which set a high standard in the art of advertising. The welfare of the road's patrons was ranked as a first essential to its own prosperity.

Mention the Chicago & North Western Railroad today and nine travelers out of ten will visualize a stretch of main-line track between Lake Michigan and the Missouri over which Union Pacific fast trains are given rights to the river and typically American engineers still stick to the British left-hand drive. Only a few experts remember that this lusty descendant of the Galena & Chicago Union is a two-trunk system. The roadbed to the west in the days of the North Western's prosperity attracted exceedingly heavy traffic, but the arm that pointed north moved a mighty tonnage. Fortunately for the pioneer line, it was the first railroad to penetrate the rich mineral lands in the Duluth and Superior region. Heavy ore trains from upper Minnesota, moving at passenger speed through a land of lakes and the finest dairy section in America, rushed copper and iron to the mills in the East.

The North Western was frequently called a Granger road. It deserved the title. Its tracks crisscrossed Iowa, where the tall corn grew, and hugged farms in Nebraska that produced far more fabulous yields of the golden grain. Every division operated at resistless speed. Paying passenger traffic and profitable freight were picked up in Chicago, Milwaukee, St. Paul, Minneapolis, Sioux City, Des Moines, Lincoln and Deadwood. The road that served the famous Calumet & Hecla mines near the shores of the Great Lakes, moved silver and gold from the rich Homestake Mine in the Black Hills of South Dakota. Cheese and hard timber, fish and wheat, sugar and chicory, gold and silver, copper and iron—all moved over the North Western's double-tracked roadbed en route to markets in every corner of the world.

The old Chicago, Milwaukee & St. Paul was a prosperous and strongly entrenched system in the dying days of the rollicking nineties. Operating more than 8,000 miles of profitable roadbed, it covered all the more important sections of Iowa, Missouri, the two Dakotas and upper Michigan. Its rails crossed the Mississippi at five different points, and its waybills called the roll of America's most valuable products. At the turn of the century a long unbroken record of success brought on an acute attack of imperialism, which led relentlessly to chronic bankruptcy. An overambitious management decided to reach for the Pacific Coast. Preliminary surveys were made to San Francisco, Portland and Puget Sound. The third route received the nod. Work was begun simultaneously at Seattle and Tacoma in the west and Mobridge, South Dakota, in the east. Fifteen hundred miles of track were laid between river and ocean in less than three years. The last spike was driven in July, 1909, near the western border of Montana.

This burst of speed was not made at the cost of cash or care. An enormous steel bridge, sixty feet high, was thrown across the Missouri at Mobridge. The roadbed was driven through mountains, spanned turbulent rivers and utilized canyonlike cuts and gigantic fills to wipe out grades. A 440-mile stretch through the mountains, from Harlowtown, Montana, to Avery, Idaho, was electrified in less than six years. A second section, the 209-mile division between Tacoma and Othello, Washington, was wired shortly after. This gave the St. Paul a total of 649 electrified miles and a new world's record. Most of the juice required was obtained from hydroelectric plants, and the heavy motors running downgrade fed additional power back to the trolleys as a helping hand to passing trains climbing the opposite track. Incidentally, the St. Paul's engineering department was able to prove that this braking against the motor was a valuable air-brakes economy and saved much wear and tear on both wheels and rails. The builders of the youngest transcontinental road in the Northwest unquestionably constructed a superb line to the coast and one which may prove well worth while if this financially crippled carrier is ever merged with the Chicago & North Western.

Western railroads played a big part in the development of virgin territory and the stimulation of American trade. James J. Hill, head of the Great Northern and Northern Pacific, sent a small army of expert investigators to India, China and Japan with orders to ascertain the requirements of dense populations in the Orient and estimate what and how the United States might contribute to these needs. His commercial sleuths captured a manifest from every ship entering or leaving Chinese and Japanese ports. These data were transmitted to American sources of supply with a request for facts to show how Japan and China might purchase these necessities in this country as cheaply as in Europe. As an important contribution to this program, Hill drove a sharp bargain with the Nippon Yusen Kaisha for special rates between Seattle and the Orient. The new contract enabled his roads to pick up profitable freight as far east as Pittsburgh. The Great Northern's president told the millers of Minnesota that a single Chinese province consuming one ounce of flour per person each day in a partial shift from an exclusive rice diet would require 50,000,000 bushels of wheat, or more than twice the surplus that year in our Western states.

Hill startled the steel industry a few years later with a new idea. He entertained a party of Japanese businessmen crossing the United States en route to Europe on a rail-buying mission. The visitors said they expected to place their orders in England and Belgium. Their host burned up the cables to London and asked for the lowest quotations on Antwerp and Middleborough products plus transportation to Yokohama. The total cost worked out around $29 a ton. Then he telegraphed Chicago and submitted a curt proposition. If the steel people were willing to make a special rate of $19.50, he would move their rails from Chicago to Yokohama at $8 a ton and deliver them on Japanese wharves just one dollar and a half under the lowest European rates. The steel men agreed, Hill booked a preliminary 15,000-ton order and a new commodity for the Orient was added to America's export list.

Jim Hill, of course, was a supersalesman, but he was not alone in his class. The Rock Island ran neck and neck with the Great Northern as an exploiter of American products. The management of this enterprising road excelled in advertising and fought hard to make its territory live up to the publicity. One area at the western end of the system seemed hopeless. It ran strongly to tablelands covered with fertile soil but baked by a dry, hot climate fatal to the wheat that flourished in the valleys. Rock Island experts studied this handicap and searched the world for a remedy. They found a hard macaroni wheat in the Volga district of Russia, where the sun scorches and rains are rare. They imported this seed and tried it in the rich soil of their tableland territory. Much to their delight, it grew and flourished regardless of aridity.

Here was merely half a success. There were no buyers for the crop. The extreme hardness of the durum made it entirely too expensive for use in mills geared to soft American and Canadian grain. This impasse called for a second discovery. The railroad investigators soon located a heretofore unknown market. They found brokers at Marseilles and other Mediterranean ports who stood ready to take big consignments of American hard wheat if the price was right. After a careful study of freight costs from the land of the Cossacks to the south of France, the Chicago, Rock Island & Pacific figured out a trip more than halfway around the world at a rate which permitted American tableland grain growers to undersell the product of Volga wheat farms worked by peasant labor.

These are just a few instances of constructive railroad undertakings a half century or more ago. They should be thrown in the balance against decidedly opposite activities which figure in the record and have lived in history. Unfortunately, as Mark Antony observed, the evil that men do usually survives the burial of the good with their bones. Evil, of course, flourished in the West when railroads were young. There are black marks against most of the pioneer roads and a fairly high percentage of the men who managed them. The outstanding individual in this hall of ill fame was the ubiquitous Jay Gould. Not content with wrecking the Erie and the Union Pacific, he utilized his gambling gains to place a withering blight on a long line of railroad buds. After unloading the proceeds of his Kansas Pacific merger, he inaugurated a series of bewildering moves from which evolved a transportation hodgepodge known as the Gould System.

The central link of this chain was the Missouri Pacific. A connection with the East was effected via the Wabash, the St. Louis & Pacific and the St. Louis, Kansas City & Northern. With this hookup completed, the Gould engineers initiated a creeping extension of their rails in the general direction of Council Bluffs. Acquisition of the Chicago & Paducah provided an entrance into Chicago. A contract with the Delaware, Lackawanna & Western brought a Lake Erie terminal into the picture. The net result of these maneuvers was a through line from Buffalo to Kansas City and Omaha that loomed as a dangerous rival for the C. B. & Q.

Gould forced his way into one of the so-called gentlemen's agreements of the day designed to put an end to blackmailing competition. This particular association was known as the Omaha Pool. He celebrated his initiation by rushing a line into Des Moines, thereby violating a solemn pledge he had given the Burlington. He added the Hannibal & St. Jo to his system as a means of setting up more effective competition. The Burlington, of course, promptly declared war. Its directors announced an extension of rails into Kansas City. This would give them a tie-in with a line actually built into Denver to connect with the Rio Grande. Conceding that his bluff had been called, Gould made another swift shift. He sold the Hannibal to the Burlington on that road's own terms, leased the Wabash to the St. Louis, Iron Mountain & Southern and beat a hasty retreat to the South, where his control was complete. After a period of concentrated meditation, he turned his eyes to the Pacific Coast. He picked up the Texas & Pacific and made a deal with Collis P. Huntington, restless chief of the Southern Pacific, rapidly building east. The new allies bought the St. Louis & San Francisco. This gave them a half interest in the Atlantic & Pacific, thereby forcing a halt in the Santa Fe's march to the sea.

The next moves in the game were bewildering. Gould juggled equities between the Iron Mountain and the M. K. & T., and turned both roads over to the Missouri Pacific. He leased the Galveston, Houston & Henderson to the International & Great Northern, a road tied to the Katy by an earlier swapping of stock. He inspired a rumor that his next step would throw the Texas & Pacific into a gigantic merger. Then, while the railroad world was in an uproar and the usual crop of lambs was gambling on stocks of the roads expected to become units of the new transcontinental line, Jay Gould again unloaded on the public at his customary percentage of profit. Consequently, when the Wabash smashed in the summer of 1884, the receivers discovered to their amazement that Gould's only holding was a handful of bonds. He took his loot East, purchased the Central Railroad of New Jersey and tried to pick up the B. & O. The acquisition of this through route to St. Louis would give him a valuable connection with the roads he still owned in the West. This, it might be noted, was the genesis of a plan which George Gould followed nearly a quarter of a century later in his attempt to create a through right-of-way from the Atlantic to the Pacific.

Wall Street gamblers were sure their ancient enemy was in trouble when the Texas & Pacific and other Gould lines followed the Wabash into bankruptcy. They were wrong, though. Gould was out in the clear. Armed with inside knowledge, he had sold the stocks of these roads at the utterly absurd prices which followed his merger fake and banked his big profits. The usual wreckage trailed his fresh success. The spectacular growth of Gould's enormous fortune spelled disaster to all roads that fell into his hands. He never improved a railroad property. There was very little left to improve when his rake-offs were registered. His final activity was an attempt to buy back control of the Union Pacific, but his timely death in 1892 saved the Omaha-Ogden line from a fate that was, however, merely postponed.

CHAPTER XIX

THE MAN WHO BUILT HIS OWN EMPIRE

LATE IN THE FALL of 1895 Winslow S. Pierce, a Gould lawyer, presented himself at 52 William Street and asked for an interview with Jacob H. Schiff. The object of his call, he told the head of Kuhn, Loeb & Co., was to present a proposal for the reorganization of the Union Pacific. Would Mr. Schiff's house undertake the financial management of the project?

The banker threw out a protesting hand.

"That is a Morgan affair," he said. "We would not consider for a moment any interference with his plans."

"It is no longer a Morgan affair," was the visitor's reply. "Morgan says it's a hopeless job. He has given up in disgust. That's why the Union Pacific interests I represent want to know if *you'll* have a try."

Schiff was a cautious soul. After a careful study of the data that Pierce left with him, he betook himself to 23 Wall Street and made proper obeisance before the throne. He had been asked to help reorganize the Union Pacific, he explained. Would such an activity in any way interfere with J. P. Morgan & Co. plans?

The master of capital was in a gracious mood. He was, he declared, definitely through with the U. P. reorganization. If Kuhn, Loeb & Co. wanted to take a shot at the mess, they had his permission. But they need not count on a Morgan participation. Twenty-three Wall Street wanted no part or parcel in the deal.

Freed from a major apprehension, Schiff tackled the Union Pacific puzzle with energy, enthusiasm and a high degree of intelligence. He interested two potent railway presidents in his plan. One was Marvin Hughitt, head of the Chicago & North Western. The other was Chauncey M. Depew, of the New York Central Lines. Both officials were known in the Street as Vanderbilt men. Consequently, the whisper went around that the New York Central, looking for a through line to the Pacific Coast, was about to absorb the Union Pacific and take over the North Western as a Chicago to Omaha link. This rumor, of course, was not particularly harmful to the new reorganization plan.

Schiff's patient unraveling eliminated, one by one, the tangles that had irritated Pierpont Morgan. At the end of a year of exceedingly hard work he thought he could see daylight ahead. And then the picture changed. Inexplicable opposition developed in Congress, certain sections of the press became suspiciously critical and a hostile attitude made itself felt in financial circles at home and abroad. Some secret and obviously powerful influence was throwing a monkey wrench into the Kuhn-Loeb machinery.

Schiff went back to 23 Wall Street. Had Mr. Morgan changed his mind?

"Not me," said that mighty potenate. "But I'll soon find out who is blocking you."

Morgan called Schiff over to his offices a week or two later.

"It's that little two-dollar broker, Harriman," he said. "You'd better look out for him. He's always a troublemaker."

Schiff knew that E. H. Harriman was the financial adviser of the Illinois Central. He recalled, vaguely, that Harriman had outwitted Morgan in a fight for ownership of the Dubuque & Sioux City Railroad. But Schiff could not understand why Illinois Central interests should oppose a salvage job on the Union Pacific wreck. He pulled some wires that brought about an interview with the "little two-dollar broker."

"I am told that you are the man who is blocking the Union Pacific reorganization," said Schiff. "May I ask why?"

"Because I propose to reorganize the road myself."

Schiff's amazement was perfectly honest.

"*You!*" he exclaimed. "But it's a hundred-million-dollar undertaking. We hold most of the securities. Where do you propose to get the money?"

"The Illinois Central has the best credit in the country," Harriman replied. "I am going to issue a hundred million of our own bonds at three per cent. That much money would cost you at least four-and-a-half."

Money talks, but low interest rates are equally vociferous in the Wall Street sector. Schiff was impressed.

"Why not come along with us?" he asked.

"I will, if you make me chairman of the new executive committee."

"We can't. That position has been promised to Winslow Pierce, who brought us the business."

"Go ahead," said Harriman.

That is precisely what Kuhn, Loeb & Co. tried to do, but the blocking tactics merely tightened. Eventually, Schiff surrendered and sent for Harriman.

"We cannot break the promise we gave Pierce," he said, "but we *can* make you both a director of the new Union Pacific Company and a member of the executive committee. From the experience we've had in recent months, I think it is safe to say that you will soon dominate the committee and eventually become its chairman."

"All right," said Harriman. "I'll go along. Put me down for a participation of about a million in the syndicate."

The Schiff prediction came true. Harriman demonstrated from the outset that he was in every way the most powerful member of the reorganization group. With his active co-operation, the Union Pacific deal was swiftly whipped into shape. The federal government's second mortgage, with accumulated interest at 3½ per cent, figured out to a fraction more than $40,000,000. When the syndicate signed the contract on November 2, 1897, this sum was paid in cash, and obligations totaling $41,000,000 were assumed. Altogether, the purchasers paid $81,500,000 for the original main line between Omaha and Ogden.

The new management took over the road from the receivers on January 1, 1898. Soon afterward, the Union

Pacific recaptured the Kansas Pacific, the Denver Pacific and various other feeders. Negotiations were begun to reacquire the Oregon Short Line and the Oregon Railroad & Navigation Company. Simultaneously, E. H. Harriman developed some acquisition ideas of his own. He began to pick up big blocks of the new common stock around 25. That seemingly reckless plunge into what Wall Street considered a radical speculation was the foundation for one of America's greatest fortunes. According to John Moody, financial expert, every hundred shares of Union Pacific common bought in 1898 for $2,500 or less grew in value to almost $22,000 in less than nine years. And Harriman, of course, did more than gamble on the future of the road. He took over the job of creating that future. As Schiff had predicted, he became chairman of the executive committee in the fifth month of 1898, and before the end of the year he was elected chairman of the whole board of directors.

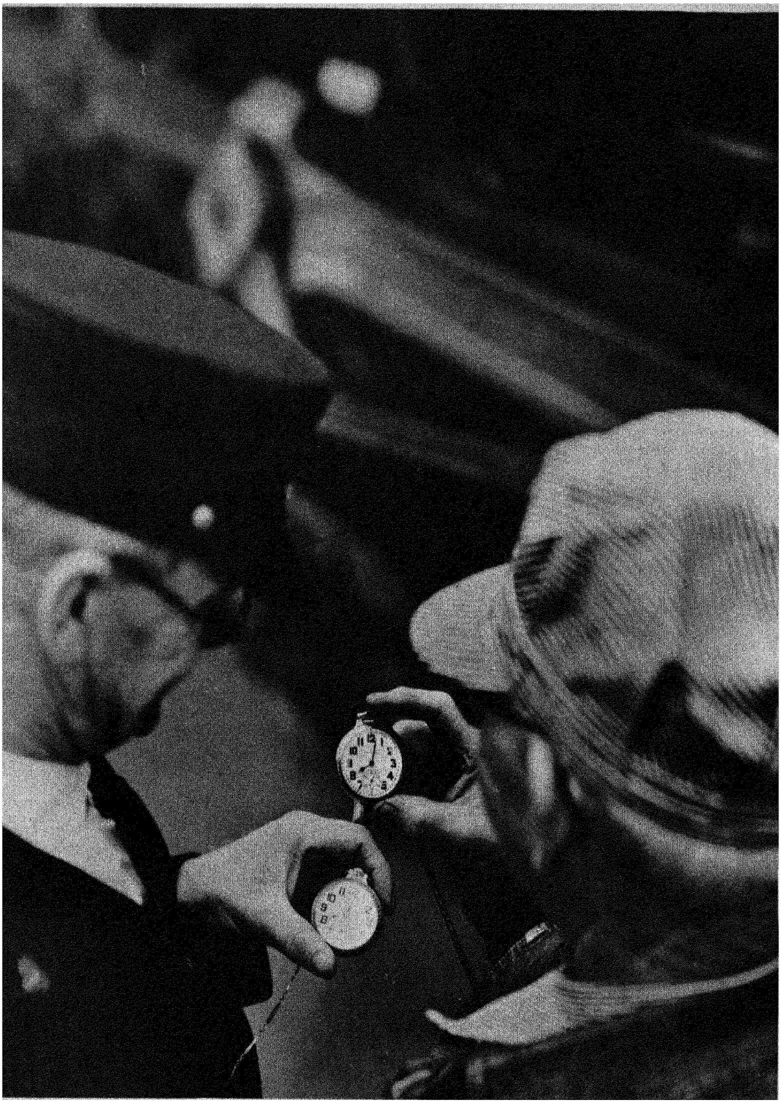
One of Harriman's first acts as autocrat of the Union Pacific was to order out an odd type of special train for an extraordinary tour of inspection. A locomotive, pushing an observation car ahead of its pilot, took the new boss of the road over every inch of the Union Pacific right-of-way. Harriman, accompanied by two of his daughters, lived in that car for weeks. So, too, did Horace G. Burt, the new president of the road, as well as Chief Engineer Berry and various other officials picked up along the line. The special ran on a daylight schedule. Throughout the tour, Harriman sat out on the platform in front making notes on grades, curves and the physical condition of the rails and roadbed. He stopped off at night in the more important stations along the line, interviewing local officials, humble employees and the shippers who patronized the line. Before his tour ended, the Union Pacific operating department realized that a new type of railroad financier had hit the right-of-way. Harriman, according to the various division superintendents along the line, soon knew more than they did about the road.

This was not as much of an exaggeration as it seemed. While the special was still crawling through the West the directors back in New York were startled by a telegram from Harriman asking for an immediate appropriation of $25,000,000 for roadbed improvements and the purchase of modern equipment. Obviously, the new head of the road was sure of his ability to outtalk doubtful directors. Without even waiting for an acknowledgment of the wire, he began placing orders for locomotives and cars.

The rebuilding of the Union Pacific and connecting lines under E. H. Harriman's personal direction is one of the most spectacular incidents in the history of American railroads. As he rode through the West in that turned-around observation car he created in his own mind a vivid picture of a new main line that would surpass the most imaginative engineer's unhandicapped dream. He was not upset by the fact that eighty per cent of the road was laid with obsolete rails varying in weight from 60 to 70 pounds. Only a little more than 340 miles of main line track showed an average of 75 pounds. And a mere

77 miles could boast rails weighing 80 and 90 pounds to the yard. There were just 200 miles of rock-ballasted roadbed between Omaha and Ogden, and not one mile was protected by railway signal devices. A high percentage of the track was badly worn and crossties were rotting all along the right-of-way. The curves and grades presented a more hopeless problem. The old Union Pacific rose 2,214 feet in the 30-mile run from Cheyenne to Sherman, and grades of 98 feet to the mile were commonplace throughout the mountain division. These vicious grades, and some of the worst curves that accompanied them, were rigid barriers against use of the type of equipment for which Harriman had actually placed his orders. Consequently, he told the engineering department to set a new roadbed standard throughout the entire length of the Union Pacific—regardless of cost. Chief Engineer Berry, Superintendent W. L. Park and President Burt, a graduate engineer, took Harriman at his word and the fight against obsolescence was on.

The 24 miles between Omaha and Lane, Nebraska, were cut to 15. The grade was reduced from 42 to 26 feet. Between Lane and Grand Island the grades went from 39 and 42 feet down to 26 and 31. More than 150 miles of the original track between Omaha and Ogden were abandoned in favor of a beautifully built new line about 40 miles shorter. Approximately 200 miles of the old roadbed were widened and rock-ballasted. Forty-two thousand tons of heavy new rails were laid in a distance of 397 miles; a million new crossties replaced rotting



Right to the second at the zero hour. A conductor and engineer of the Southern Pacific's Sunset Limited put a final check on their "time."

She takes the high road. The Southern Pacific's "City of San Francisco" crossing the last mountain divide en route to the coast.

wood; and 4,000 feet of dangerous timber bridges gave way to solid steel structures and permanent earthen embankments.

The really spectacular achievements came in the mountain division. The engineers were told to take the Union Pacific over the Rockies on a maximum grade of 43 feet to the mile. That is exactly what they did. When Berry's assistants came back from the hills where the Union Pacific attained its greatest rise above sea level and told him they could not improve on the work of the original builders, he sent them back and told them to stay until they found a maximum grade of 43 feet. They finally brought him back the line he demanded, but the victory was won at an appalling cost. The present Dale Creek crossing required a fill 900 feet long and 130 feet deep. At the top of the new rise the Union Pacific engineers drove a tunnel through 1,800 feet of solid granite, thereby scaling 247 feet from the grade. The fight seemed hopeless when the construction gangs tackled the drop beyond the western end of the tunnel, but Berry, moving 5,000,000 cubic yards of rock and dirt as he went along, took his new line in wide, graceful curves down the 18 miles to Laramie on a grade that never exceeded his limit of 43 feet.

A vivid picture of just one incident that figured in the rebuilding of the Union Pacific was created by Frank H. Spearman in *The Strategy of Great Railroads.*[1]

He wrote:

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[1] Copyright, 1904, by Charles Scribner's Sons.

"First and last the contractors uncovered a little of everything in the Rockies, from oil pockets to underground rivers, but in Wasatch Range, in boring a six-thousand-foot tunnel, they struck a mountain that for startling developments broke the records in the annals of American engineering. It was here that the underground stream was encountered, but this was a mere incident among the possibilities in the mountain. The formation is carboniferous, thrown up in the Aspen Ridge at an angle of twenty-five degrees, and it includes shale, sandstones, oil and coal. To bore a hole through the mountain at a depth of four hundred and fifty feet from the highest point was not difficult; but the curious thing was that, after being bored, the hole would not stay straight. The mountain, reversing every metaphor and simile of stability, refused to remain in the same position for two days together. It moved forcibly into the bore from the right side, and when remonstrated with stole quietly in from the left; it descended on the tunnel with crushing force from above and rose irresistibly up into it from below.

"The mountain moved from every quarter of the compass and from quarters hardly covered by the compass. Workmen grew superstitious, contractors suffered chills, and engineers stood nonplussed. Starting in huge cleavage planes, the shale became at times absolutely uncontrollable. Wall plates well fastened into regular alignment at night looked in the morning as if giants had twisted them; 12-by-12 hard-pine timbers laid skin to skin in the tunnel were snapped like matches by this mysterious pressure. Engineers are on record as stating that in the Aspen tunnel such construction timbers were broken in different directions within a length of four feet. An engineer stood one day in the tunnel on a solid floor of these timbers, when under him, and for a distance of two hundred feet ahead of him, the floor rose, straining and cracking, three feet up into the air.

"Before the tunnel could be finished it became necessary to line over 700 feet of it with a heavy steel and concrete construction. Gases caused frequent explosions and only constant vigilance prevented the most serious disasters to the men. When in Valhalla the heroic spirits of the American section of civil engineers assemble it will be for the shades from the far Rockies to recount the tallest stories."

Harriman slaughtered the Union Pacific's obsolete equipment. Two hundred light engines were sold for scrap and replaced with powerful locomotives that pulled twice the tonnage. Nearly 5,000 new freight cars with a carrying capacity not far from a third of a billion pounds almost doubled the old 400,000,000-pound capacity of the 10,634 freight cars already owned by the road. Harriman's heavy traffic trains, running over a model roadbed, had twice the carrying capacity of their predecessors, without anything like a comparable increase in the cost of operations. Thus, the Union Pacific was ready and waiting for the boom its new overlord had foreseen. The road earned $34,000,000 gross and $14,000,000 net in the fiscal year that ended on June 30, 1899. In the following year these figures jumped to a gross of $39,000,000 and an even $20,000,000 net. Four months later the common stock was put on a 4 per cent basis and the company ended the year with a cash surplus just under $5,000,000.

When 1900 rolled around, Harriman, now supreme head of the beautifully rebuilt Union Pacific, lost patience with his connection from Ogden to San Francisco. Good effects of the Union Pacific reconstruction were nullified by the roadbed west of Salt Lake City. This link in the trunk line from the Missouri River to the Pacific Ocean was a highly important unit of the Southern Pacific System. Nevertheless, Harriman attempted to buy the Central Pacific outright. He wished to rebuild it into a suitable extension of the Union Pacific main line. The Southern Pacific, of course, refused to sell. So Harriman decided to buy the Southern Pacific.

Collis P. Huntington, dominant head of that road, died on August 13, 1900, leaving 475,000 shares of Southern Pacific common in his estate. On February 5, 1901, the Union Pacific authorized a $100,000,000 4% convertible bond issue and turned the securities over to Harriman for sale, with the right to spend the proceeds in whatever manner "in his judgment may be practicable and desirable." A part of those proceeds captured the 475,000 Southern Pacific shares from the Huntington estate. Another block of 275,000 shares was picked up across the market. On March 31, 1901, the Union Pacific owned 750,000 shares of Southern Pacific, or about 38 per cent of the capital stock of the company. At an average of $55.82 per share, this represented an investment of approximately $42,000,000. Continued buying in the market soon gave the Union Pacific 1,080,000, or 45½ per cent of the Southern Pacific's 2,374,000 shares. That holding, temporarily at least, satisfied Harriman. He called into consultation Julius Kruttschnitt, general manager of the Southern Pacific, told him that $18,000,000 was available for improvement of the Central Pacific line between Ogden and San Francisco and instructed him to bring this stretch of roadbed up to the Union Pacific standard.

"Over what period of time do you want the expenditure spread?" was Kruttschnitt's thoroughly understandable query.

"Spend it all in a week—if you can," was Harriman's nonchalant reply.

The first bad spot attacked in this second rebuilding of a transcontinental railroad was the Central Pacific right-of-way around the northern end of Great Salt Lake. This part of the road, as created by Chinese coolies back in 1868, reached at one point an elevation of 4,900 feet above sea level. It bristled with curves and showed grades as steep as 90 feet to the mile. With Harriman's permission, that particular section went out the window. A direct route, most of it trestlework, was thrown 27 miles across Great Salt Lake. This airline, known as the Lucin cut-off, reduced the run between Ogden and Lucin from 147 to approximately 103 miles, and brought the grade down from 90 to 21 feet. When this new line, built with tremendous difficulty over the treacherous bottom of an inland sea, was opened for traffic on November 26, 1903, it had piled up a cost in the neighborhood of $9,000,000. Harriman, however, was delighted. The new right-of-way was practically perfect for the heavy trains and high speed of the Union Pacific.

The next job, which called for the rebuilding of less than 12 miles, proved even more costly. At the very end of the old Central Pacific line, built in 1863, an entrance into San Francisco was provided by a single-track road that showed 796 degrees of curvature and a grade of 158 feet to the mile, or 115 feet above the Union Pacific maximum. This line ran into the city west of the San Bruno Mountain that separates the Pacific Ocean and San Francisco Bay. The city had grown up around this right-of-way. It was impossible, therefore, to eliminate its defects. Convinced on this point, Harriman decided to abandon the original road and create a new San Francisco entrance. His engineers were told to go to town on a line east of the mountain. They did so, but at a price. They took a new double track along the shore of San Francisco Bay and literally blasted their way into the city. Five tunnels, totaling about 10,000 feet, plus a chain of costly bridges, eliminated 2.65 miles from the last lap of the overland run, wiped out 592 degrees of curvature and brought that 158-foot grade down to less than 16 feet to the mile. This achievement, known as the Bay Shore cut-off, cost about nine and a quarter millions, or around $800,000 a mile, but Harriman thought it was cheap at the price when balanced against the resulting operating economies.

Another important bit of construction was a 60-mile cut-off on the main Southern Pacific line between Burbank and Montalvo. This new route through the Santa Susana tunnel shortened the road about 7 miles, eliminated 2,276 degrees of curvature and reduced the grade from 116 to 53 feet to the mile.

There were less than 50 miles of block signal track along the 9,000 miles of the Southern Pacific when Harriman took over the road. He installed automatic signals on about 3,000 miles of the main line at a cost of $2,835,000. He bought 540 powerful new locomotives and 8,869 large freight cars. Prior to this, the heavy traffic trains could carry about 959,000 tons on an average single trip. The new equipment jumped that figure to 1,633,000 tons. Altogether, Harriman spent almost $242,000,000 on his reconstruction of the Southern Pacific. His expenditures on Union Pacific betterments, additions and equipments totaled more than $174,000,000. A very high percentage of this amazing total of $416,000,000 lavished in less than a dozen years on the building of a vast railway empire came from increased earnings. Most of the money was used to transmute rundown or improperly constructed roadbeds into one of the finest railway systems in the history of transportation. Yet Harriman built more than 1,500 miles of new lines while the old were being brought to a state of efficiency that aroused the envy of every railroad rival.

His amazing achievements challenged the attention of the nation. Newspaper commentators with a whimsical blend of admiration and humor dubbed him "The Colossus of Roads." A more accurate estimate of the "little two-dollar broker" was woven into a pen picture published by *McClure's Magazine* back in 1909. "In comparison with him," wrote Burton J. Hendricks, "the Vanderbilts, the Goulds, the Garretts, the Huntingtons represent the parochial period in our railroad history. They consolidated small railroads into kingdoms; Harriman is federating their kingdoms into empires."

CHAPTER XX

A GHOST DANCE ON THE STOCK EXCHANGE

JAMES J. HILL was almost an hour late for the appointment when he presented himself at 258 Madison Avenue. Jacob H. Schiff and E. H. Harriman were in the library, impatiently awaiting his arrival from the Jersey City ferry. So, too, was their host, George F. Baker, Board Chairman of the First National Bank and Jim Hill's very good friend. The conference had been called by the Union Pacific representatives to protest against a shut-out purchase of the Burlington by the Great Northern and Northern Pacific.

Harriman had tried to buy the Burlington almost a year before. His efforts ran the market up but got him a total of exactly 80,300 shares at prices averaging around 125 and a cost of something over $10,000,000. This wasn't much of a dent in the quarter of a billion capital structure. Approximately fifteen thousand other Burlington stock owners evidently liked their investment and were not tempted by the jump in price. Convinced, eventually, that the attempt was hopeless, Harriman and his associates closed out their buying pool. They liquidated 60,000 of their 80,000 shares at prices ranging from 130 to 140, split up for personal investments the balance of 20,000 shares, and Harriman turned back to his work on the Union Pacific.

Shortly after the failure of the Harriman pool to acquire control, James J. Hill decided to try his luck. He wanted the Burlington as a Chicago outlet for the Great Northern and Northern Pacific. More important, this fine railroad would give him a market for West Coast products and provide needed westbound traffic for the Hill Lines. The Burlington tapped prairie states that required timber from the Northwest and picked up in Omaha, St. Joseph, Kansas City and St. Louis provisions for Pacific Coast kitchens. Regardless of cost, Hill felt that he simply must add the Burlington to his railroad empire. He put his idea up to the directors who controlled the road. They demanded $200 a share for their stock. This was far above current market quotations, but Hill did not hesitate. He agreed to pay.

This was the situation that had just come to the attention of the Union Pacific executives. On the eve of the purchase, they asked for an emergency conference. The Burlington cut deep into their territory. It ran west to strategic points from which it might, conceivably, hook up with the new Short Line actually under construction between Salt Lake City and Los Angeles. It could easily become a dangerous transcontinental competitor. There was, however, an obvious solution of the problem.

When the conference got down to brass tacks, Harriman proposed a three-way ownership. Let the Union Pacific in for thirty-three per cent of the purchase price, he suggested, and give his road representation on the Burlington board. This would not conflict with the flow of northwest traffic between St. Paul and Chicago, and it would guarantee the Union Pacific against a new rival line from Omaha to the coast.

Hill politely refused. The Burlington deal, he said, would be closed next day. The road was being bought for joint ownership by the Great Northern and Northern Pacific. His two roads were paying a stiff price because they wanted their own right-of-way into Chicago. They were not willing to share the Burlington with any other interests.

Harriman, obviously excited, nervously paced the floor.

"Very well," he said, with a dangerous flash of his eyes. "If that is your final decision, I am compelled to regard it as a hostile act."

This was fair warning in any man's language.

It fell on ears that would not hear.

Hill went back to Seattle and resumed his study of new transpacific facilities to tie up trade with the Orient. Harriman went into a session with himself on the question of ways and means. He had been refused a third interest in the C. B. & Q.; why not become a half owner of the road? A mere $80,000,000 and a reasonable run of luck were the only requisites in the daring plan that flashed into his mind.

"Buy the Northern Pacific," he told Kuhn, Loeb & Co.

The stage was set for a daring coup. News of the Burlington purchase had created activity in Great Northern and Northern Pacific stocks. The owners of these roads were not interested at the moment in reports from the floor of the Exchange. Strathcona and Mount Stephen were absorbed in Canadian affairs. Hill was concentrating on China and Japan. Pierpont Morgan was basking in charming feminine companionship and testing the sulphur baths at Aix-les-Bains. The idea of a raid on a Morgan-Hill road was so utterly inconceivable that 23 Wall Street dropped from its collateral on the second day of May at prices well over par a block of 10,000 Nipper that showed a tremendous profit. The Kuhn, Loeb buying was so quietly accomplished that even the Northern Pacific itself, tempted by prices far above the true value of the stock, tossed 35,000 shares at the market.

The Seattle newspapers carried that week as part of the news of the day full reports of all trading on the Big Board in New York. Some of the statistics attracted Jim Hill's attention. He was utterly ignorant on the subject of Wall Street, but two facts impressed him. One was the steady rise in Northern Pacific quotations. The other was the extraordinary volume of day-by-day trading in that stock. A sixth sense told him that something was wrong. He ordered out a special train, demanded rights to St. Paul and Chicago and set a new speed record between Seattle and New York.

"Who's buying Northern Pacific?" he asked the Morgan stock specialists when he reached the corner of Broad and Wall on Friday afternoon, May 3, 1901. Told that Kuhn, Loeb & Co. had been taking on some particularly heavy blocks, Hill hurried to the private offices of Jacob H. Schiff.

"Why are you buying Northern Pacific?" he asked.

"For the Union Pacific," said Schiff with something akin to a smirk of satisfaction on his face. Like Harriman, he had resented Hill's curt refusal to consider the Union Pacific's request for a modest participation in the Burlington deal.

"But *why?* You can't buy enough stock to give you control of the road."

"We've got control," was Schiff's retort.

Apparently they had.

When Harriman called at 52 William Street later that day, he was shown some convincing figures. Kuhn, Loeb & Co. had picked up around 370,000 shares of common and about 420,000 shares of the voting preferred. This, unquestionably, was an out-and-out majority of the Northern Pacific capital stock. But Harriman, a genius for details, was not satisfied with the picture.

"There's a catch in that preferred," he told Louis Heinsheimer, the junior partner in charge of the account. "It can be retired at par on any January first by a vote of the board of directors. We need a majority of the common. Buy 40,000 shares at the opening tomorrow."

That order was not placed. Heinsheimer wanted an approval by the head of the firm before issuing instructions to brokers on the floor. Schiff, called from a synagogue next morning, scoffed at the idea.

"Don't execute the order," he said. "I'll be responsible."

Harriman spent the week-end in bed. He was facing an operation for appendicitis. When he telephoned Monday to ask what price he had paid for the 40,000 shares, Heinsheimer reported the cancellation. The market was boiling and Northern Pacific was climbing. The psychological moment had passed, so Harriman resigned himself to the situation. He knew the bankers had blundered, but he decided to make his fight on his mixed-stock control.

Meanwhile, the cables were humming with messages between 23 Wall Street and Aix-les-Bains. Pierpont Morgan, aroused from daydreams in France, did not share Hill's confidence in the Stonewall Jackson qualities of all friendly owners of Northern Pacific. He was impressed by the fact that Schiff was claiming control of the road. He studied the messages from New York and reached a characteristic decision.

"Buy one hundred and fifty thousand Northern Pacific at the market," he cabled.

This was better than a seventeen-million-dollar order.

On Monday morning, May 6, 1901, Nipper opened strong in London. When trading began five hours later on this side of the Atlantic the fireworks really began. Jim Keene, Morgan buyer, and his eager assistants swarmed around the N. P. post, like bees in the vicinity of an upset hive, bidding frantically for big blocks of Northern Pacific. They ran the price up forty points in less than ten hours. When the gong was rung at the close of business on Tuesday, May 7, Morgan had bought his 150,000 shares, the price of the stock was fluttering around 150, and Wall Street was hopelessly bewildered. One thing seemed certain to experts in the Street. That swift run-up in Nipper was utterly unjustified by dividend expectations or the earnings of the road. The speculators decided that someone had blundered. So they began to sell short. The fast and furious trading continued through Wednesday, notwithstanding the fact that Harriman and Morgan had retired to the sidelines. On Thursday, May 9, the gamblers learned to their horror that they couldn't borrow stock. Northern Pacific was cornered.

This discovery precipitated a panic that shook stock exchanges in two hemispheres. Frantic attempts by the shorts to cover their positions drove Northern Pacific to $1,000 a share. Other stocks were thrown overboard to protect margin accounts and prices were slaughtered. Losses of $40 and $50 a share were registered by sound investment securities in less than an hour of trading. Thoroughly responsible firms were unable to deliver Northern Pacific stock and before the end of the week probably half the houses in the Street were trembling on the brink of technical failure.

Thoroughly alarmed by the havoc they had created, the Hill and Harriman bankers called an emergency conference and worked out a solution of the problem. The shorts who couldn't find stock were permitted to settle with cash on a basis of $150 a share. A group of Wall Street banks created a $20,000,000 pool to ease money conditions in the Street. The panic was ended almost as swiftly as it began and before its brief fury could affect general business conditions through the nation.

This swift-moving financial melodrama completely bewildered Jim Hill, an empire builder who had never before seen a wave of insanity grip the money-changers in the temple. Asked for a comment by one of the Wall Street reporters, he said:

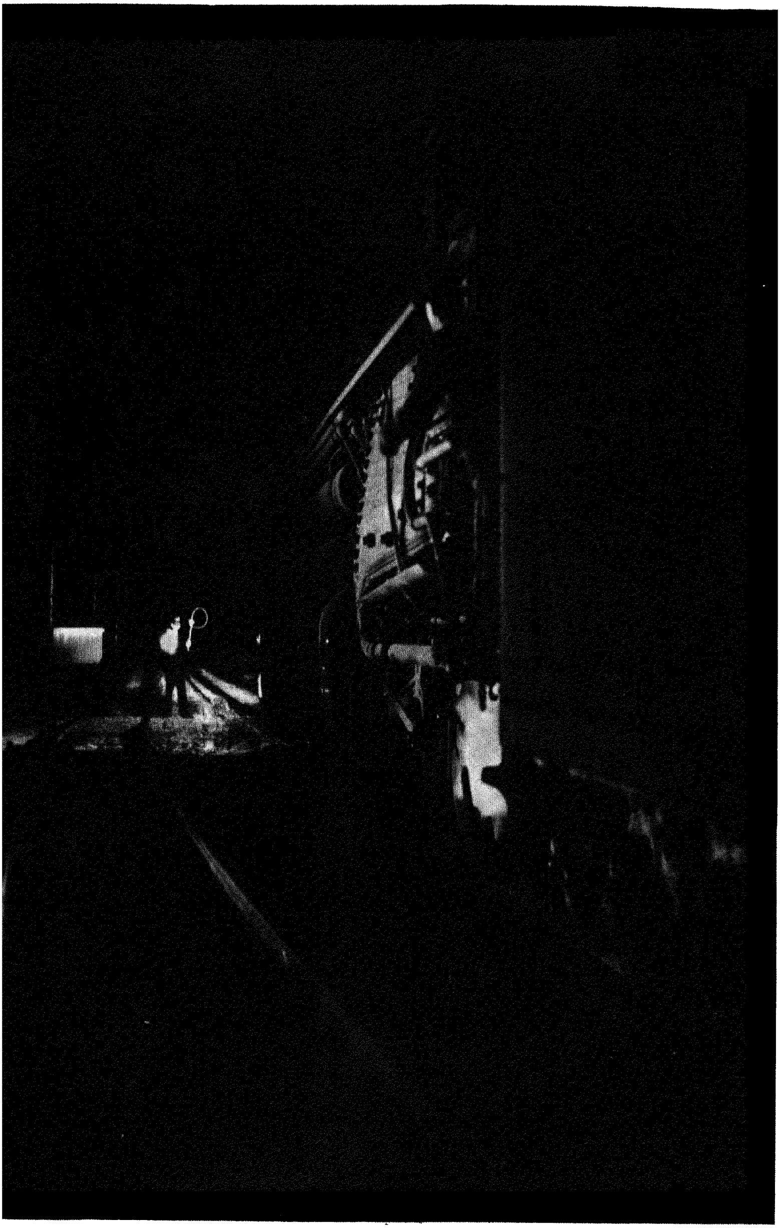
> "All I can do is to liken it to a ghost dance. The Indians begin their dance and don't know why they are doing it. They whirl about until they are almost crazy. It is so when these Wall Street people get the speculative fever. Perhaps they imagine they have a motive in that they see two sets of powerful interests which may be said to be clashing. Then these outsiders, without rhyme or reason, rush in on one side or the other. They could not tell you why they made their choice, but in they go, and the result is such as has been seen here for the past few days."

The battle that followed Harriman's drive on Northern Pacific must be classed as a draw. Both sides claimed victory. Morgan and Hill undoubtedly retained a safe majority of common stock. It is equally certain that Harriman owned a voting control in his common and preferred. Everything hinged on the ability of the existing Northern Pacific management to postpone an election of new directors until after retirement of the preferred stock on January 1, 1902. This question could be decided only by a bitter and protracted battle in court. Such a contest would damage the best interests of all parties concerned. Very wisely, therefore, the contestants elected to work out a compromise.

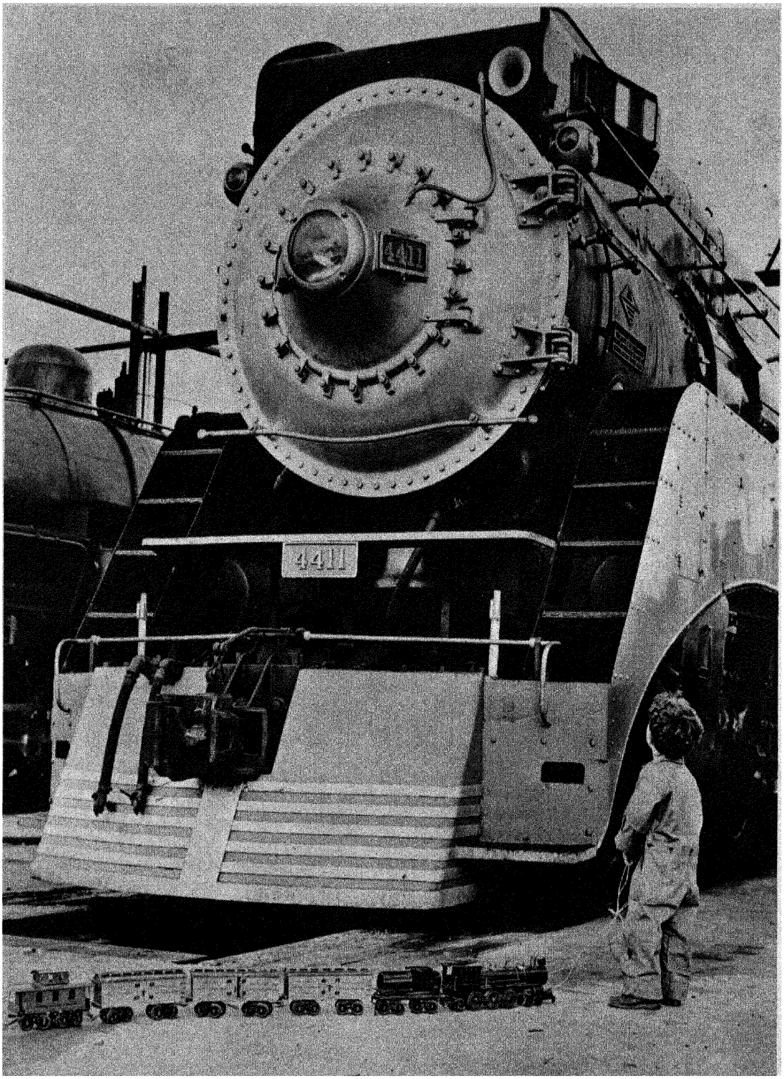
A holding corporation called the Northern Securities Company was created as a depository for Northern Pacific and Great Northern stocks. All parties concerned agreed to turn in their shares in these railroads and accept in exchange a specified percentage of Northern Securities stock. This new corporation was capitalized at $400,000,000, which made it reasonably safe from future stock market raids. Even Harriman could be discouraged by a barrier of almost half a billion. In exchange for this concession, the Union Pacific was given adequate representation on the Northern Pacific and Burlington boards.

This satisfactory solution of a bad situation was not permitted to enjoy a tranquil old age. The very size of the Northern Securities Company frightened the public and challenged the attention of politicians. The big holding company became a target for newspaper attacks in the Northwest, and the Washington government called for a hand in the game. President Theodore Roosevelt directed his Attorney General, Philander C. Knox, to test the legality of the new concern that was causing so much discussion. The case was fought through the Minnesota circuits and carried up to the Supreme Court of the United States. By one of those famous five-to-four decisions, the highest tribunal in the land on March 14, 1904, proclaimed the Northern Securities Company a combination in restraint of trade and ordered its dissolution.

When this death sentence was read a new problem developed. The old preferred stock of the Northern Pacific Railroad had been retired with the proceeds of a convertible bond issue. These bonds, in turn, had been exchanged for common stock. Thus, the original Union Pacific deposit now represented an outright control of



Taking orders on the fly. A Norfolk & Western engineer picks up his "papers" from the dispatcher's office without checking the speed of his train.



Just a question of time, he thinks, as he studies a giant locomotive assigned to the streamliner "Daylight" on the San Francisco-Los Angeles run.

the Northern Pacific Railway. Consequently, the board of directors of the Northern Securities Company, two-thirds of which were friends of the Hill Lines, voted for a percentage distribution of assets. This plan would give each holder of one share of Northern Securities stock a dividend of $39.27 in Northern Pacific common, $30.17 in Great Northern common and one share of Northern Securities stubs, representing a participating interest in all assets of the holding company other than Northern Pacific and Great Northern common stock. Such a surrender would return to Harriman about $28,000,000 par value of Northern Pacific stock and approximately $21,500,000 par value of Great Northern as a return for the $41,000,000 he had invested in old preferred and $37,000,000 in common, or the approximate $78,000,000 actual market cost of the two Northern Pacific voting stocks he had originally deposited.

The new capital structure of the road showed no preferred stock, but an all common equity of $155,000,000. A return of Northern Pacific only, which Harriman wanted, would give him about $78,000,000 of the new common, or approximately a million dollars more than a 50 per cent ownership of the big transcontinental line. This ownership, of course, carried with it a half interest in the Burlington system. Naturally, there was a storm of protest when Harriman presented his claim and calmly demanded a stock surrender that would give him control of three great railroads operating between Chicago and the Pacific Coast. This would leave only the Great Northern along the Canadian border and the Santa Fe at the far south as transcontinental competitors of the Union Pacific and its subsidiaries.

There was nothing to discuss in this dispute. It had to be fought out in the courts. The case was eventually carried to the Supreme Court of the United States and a decision against Harriman was handed down. He was compelled to accept minority holdings in the Great Northern and Northern Pacific in exchange for his control of the line he wanted.

These big stock holdings, of course, were utterly valueless in Harriman's plans for expansion. A few months later, when prices were around the top, he threw both blocks at the market and registered a cool profit of $58,000,000 on his original $78,000,000 investment in Northern Pacific.

Even defeat brought rewards to E. H. Harriman in the twelve colorful years of his reign as the most brilliant and powerful ruler the railroad world has ever known.

CHAPTER XXI

Watch Those Drivers Roll

It was just three o'clock in the morning of April 30, 1900, when John Luther Jones, with his hand on the throttle of 638 decided he wouldn't slow down for the sharp curve ahead. He was pulling the *Cannonball Express* over the main line of the Illinois Central between Chicago and New Orleans. This was not his regular run. He had rolled into Memphis the night before from Canton, Mississippi, just in time to hear that Joe Lewis was "down with the cramps" and couldn't take out the 638. Glad to do his brother engineer a good turn, Jones volunteered to double back. He grabbed his train orders, climbed into the waiting cab, snapped the long line of through Pullmans out of the Memphis yards against a blinding rain and began to pick up speed for the southbound run.

The *Cannonball* was behind her schedule as she left Memphis, so the engineer decided—rain or no rain—to hit it up. He told his fireman, Sim Webb, to give him steam and "watch them drivers roll." They soon revolved sufficiently fast to send the heavy train down the track at something better than sixty miles an hour. Her impatient runner was crowding the rails as he took the last curve north of Vaughan, Mississippi, and whistled loud and long for the little station ahead. He released the cord and went into swift action when he saw a lantern swing across the main-line track. A long freight, taking the siding to get out of his way, was not quite in the clear. The caboose and two or three heavy boxcars were still short the switch when 638's headlight bored through the darkness. Jones choked her, threw the air, let his sand pour over the rails, gave her the big hole and told his fireman to jump. Webb accepted this advice and escaped with his life, but "Casey" stuck to his post. He had both hands on the heavy Johnson bar and his drivers were dancing a mad race in reverse when he took that farewell journey to the promised land.

They called him "Casey" in I. C. train circles because he was born and raised on a farm near Cayce, Kentucky. He broke into railroading as a fireman on the Mobile & Ohio, shifted to the Illinois Central and in 1890, at the age of twenty-seven, became a full-fledged engineer. In 1900 he was merely another addition to the long list of American locomotive experts who have stayed with their engines under the promptings of the same rigid code that compels the captain of a sinking liner to stick to his bridge. Twenty-four months later, however, the man who went to his death in old 638 became an immortal. Two song writers, Eddie Newton and Lawrence Seibert, overheard Wallace Saunders, a Negro engine wiper at Jackson, Mississippi, crooning a ballad he had composed about a brave engineer named Casey Jones. They tightened up the jingle, reduced it to words and music, and within a very few months the entire nation was keeping time to a melody that has become a classic.

Here are the words that T. Lawrence Seibert turned out:[1]

Come all you rounders if you want to hear
A story about a brave engineer.
Casey Jones was the rounder's name,
On a six, eight-wheeler, boys, he won his fame.
The caller called Casey at half-past four—
Kissed his wife at the station door,
Mounted to the cabin with his orders in his hand,
And he took his farewell trip to that promised land.

CHORUS.

Casey Jones mounted to the cabin,
Casey Jones with his orders in his hand,
Casey Jones mounted to the cabin,
And he took his farewell trip to that promised land.

Put in your water, and shovel in your coal,
Put your head out the window, watch them drivers roll.
I'll run her till she leaves the rail,
'Cause I'm eight hours late with that western mail.
He looked at his watch, and his watch was slow,
He looked at the water and the water was low;
He turned to the fireman, and he said:
"We're going to reach 'Frisco, but we'll all be dead."

CHORUS.

Casey Jones going to reach 'Frisco,
Casey Jones, but we'll all be dead.
Casey Jones going to reach 'Frisco;
We're going to reach 'Frisco, but we'll all be dead.

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[1] Copyright, 1909, by Newton and Seibert, Los Angeles, California.

Casey pulled up that Reno hill,
He tooted for the crossing with an awful shrill;
The switchman knew by the engine's moans,
That the man at the throttle was Casey Jones.
He pulled up within two miles of the place,
Number four staring him right in the face.
He turned to the fireman, said, "Boy, you'd better jump,
'Cause there's two locomotives that's a-going to bump."

CHORUS.

Casey Jones, two locomotives,
Casey Jones, that's a-going to bump.
Casey Jones, two locomotives,
There's two locomotives that's a-going to bump.

Casey Jones said just before he died:
"There's two more roads that I'd like to ride."
Fireman said, "What could that be?"
"The Southern Pacific and the Santa Fe."
Mrs. Jones sat on her bed a-sighing,
Just received a message that Casey was dying,
Said, "Go to bed, children, and hush your crying,
'Cause you got another papa on the Salt Lake Line."

CHORUS.

Casey Jones, got another papa,
Mrs. Casey Jones on that Salt Lake Line.
Mrs. Casey Jones got another papa,
And you've got another papa on that Salt Lake Line.

Thirty-five years before the switchmen knew by the engine's moans that the man at the throttle was Casey Jones, a clergyman in Roxbury, Massachusetts, the Reverend Samuel Calthop, drew a design for an "air-resisting train" and filed it with the U. S. Patent Office in Washington. Thirty-five years after Casey took that final run, which the authors of the ballad rather arbitrarily shifted from the Illinois Central to the Central Pacific, all railroads in the United States were watching new speed records rolled up by streamlined trains on the Union Pacific and Burlington systems. There is today, as there has been for more than a hundred years, a potent appeal to the American public in an engineer's race against time. Publicity inspired by Diesel-driven trains has spread the theory that bursts of speed of substantially more than a hundred miles an hour are railway achievements of recent vintage. It would be extremely interesting to know, therefore, just how many miles an hour were run in 1873, when a special on the Baltimore & Ohio pulled out of Washington at 10.08 o'clock one June morning and stopped at the Camden Station in Baltimore at exactly 10.46. Better than 37 miles in an even 38 minutes called for decidedly fast running on some of the straight stretches in that original right-of-way.

There can be no argument about the record which Charley Hogan established in 1893 with a New York Central locomotive, the famous old 999. This product of the company's West Albany shops was built for speed. When she rolled out of her birthplace the operating department turned her over to Hogan, crack engineer on the New York-Chicago run.

"Take that engine," said the powers that be, "and smash the world's record."

On May 11, 1893, after completing some confidential tests, Hogan ran the 999 to Syracuse to meet the westbound *Empire State Express* with orders to take the flyer into Buffalo as fast as he could. He toyed with the schedule at the beginning of the run, deliberately holding down his speed, and slipped into Rochester exactly on time. He wanted to give his new pet a preliminary warming-up. Also, he knew by heart every inch of the right-of-way between Rochester and Buffalo. He was really burning up the track when he flashed through Batavia. Nevertheless, he pulled the bar up to a fresh notch and the 999 leaped forward like a nervous race horse under a jockey's whip. Just west of Batavia she equaled with ease the world's record of a mile in 35 seconds. Hogan studied his watch, smiled, turned to his fireman and said:

"Now we'll go after the record."

He gave her another notch and the N. Y. C.'s new speed marvel began to sing. Hogan and a group of experts in the train behind him watched their timepieces as the telegraph poles began to blur. The next mile was run in exactly 32 seconds, or at the rate of 112.5 miles an hour. The man at the throttle had obeyed orders. He had clipped three seconds from the fastest time ever made on a railroad. Merely as a precaution and to avoid any unnecessary arguments, he maintained the same dizzy speed all the way into Crittenden, a station several miles ahead. As a result of this demonstration, the Central decided to originate a twenty-hour train between New York and Chicago. The directors also decided to exhibit the 999 at the Chicago World's Fair and send Hogan along as an added attraction.

This 32-second record stood for a little more than eleven years. In July, 1904, however, the Philadelphia & Reading ran a train over a 4.8 mile stretch near Egg Harbor, Pennsylvania, in 2 minutes and 30 seconds, or at a speed of 115.2 miles an hour. Just one year later that mile in 31¼ seconds was surpassed by the Santa Fe.

On Saturday morning, July 8, 1905, Walter Scott, better known as "Death Valley Scott," drifted into the office of John J. Byrne, the Atchison, Topeka & Santa Fe's district passenger agent at Los Angeles, California. He was loaded down with money in big bills and a brand-new publicity idea.

"I've come to buy speed," he announced. "What'll you take to run a special to Chicago in forty-five hours?"

Byrne told his visitor to behave. The best time between Los Angeles and Chicago, recently established by the *Peacock Special,* was 57 hours and 56 minutes. Scotty sneered. He had repeatedly traveled blind baggage over every mile of the road and was not impressed by the *Peacock*'s record. He wanted absolute rights over everything on wheels; he wanted all switches spiked half an hour ahead of him; and he was perfectly willing to pay the price for a spectacular run. Finally, in sheer despair, Byrne agreed to tear his entire system into splinters and hit for more than 2,200 miles in something under 50 hours. Once committed to this insanity, he began issuing telegraphic orders. Before the sun went down that night every division along the Santa Fe route was on its toes, ready and waiting for the train which Scotty called his *Coyote Special.*

It was one hour after noon on Sunday, July 9, 1905, when the *Coyote,* with Engineer John Finley at the throttle of 442, pulled out of the Los Angeles yards and hit the main line with wide-open rights to Chicago. Finley tore through San Bernardino, sixty miles out of Los Angeles, 4 minutes ahead of his schedule. He was twenty-five minutes out in front when he slowed up for Barstow, on the edge of the Mojave Desert. Also, according to some of the newspapermen who rode the *Coyote* on that historic trip, he had reeled off one mile in 31 seconds. This did not go into the archives of the Santa Fe as a new world's record because it was not officially timed. There is no reason, however, to doubt the press contention that Finley clipped a quarter of a second from the Philadelphia & Reading's burst of speed just one year before on the run through Egg Harbor.

Scotty didn't mind the desert heat as a new engine and crew took the *Coyote* through clouds of sand with her flanges screaming. When he roared through Fenner at 6.48 that evening he grinned at the eastbound *Chicago Express,* standing ignominiously in the siding. This de luxe flyer had left Los Angeles at 7.30 that morning, 5½ hours ahead of the special. She had been run down and passed in 5 hours and 38 minutes. The *Coyote* was due in Needles at 7.30. She was in and out at 7.17. At 9.30 Monday morning she was in Albuquerque, New Mexico, 888 miles east of Los Angeles and 34 minutes ahead. She made the difficult 202-mile run from La

Junta to Dodge City in 198 minutes. At Fort Madison, with 239 miles to go, Engineer Losee, a taciturn expert, took over the special for the final dash.

This last man at the throttle was out to make time. He knew he couldn't beat Finley's thirty-one seconds' dash, but he braced himself against the side of his cab and ran the 2⅛ miles between Cameron and Surry in a fraction over 95 seconds. Then Losee developed engine trouble and lost ten precious minutes. Nevertheless, he pounded those last 239 miles in 244 minutes, including three full stops. It was just 11.54 Tuesday morning when the *Coyote* came to a grinding stop in Chicago's Polk Street Station—13 hours and 2 minutes ahead of the best time ever made by a Santa Fe eastbound special. Scotty had covered two-thirds of a continent in six minutes less than 45 hours. He had traveled 2,265 miles, including all stops, in 2,694 minutes. Even the overlord of Death Valley admitted that he'd had a run for his money.

When speed was discussed in the period prior to the *Coyote*'s run, all experts paid tribute to British regular passenger train service. A careful study of routine English schedules established thirty-odd years ago indicates that the fastest terminal-to-terminal run around the turn of the century, "44 miles and 8 chains," from Darlington to York, was made in 42 minutes. This was an average of 61½ miles an hour. First honors in the United States at that time were held by the Atlantic City Express, which ran the 55½ miles between Camden and the ocean in 50 minutes, an average of 66.6 miles an hour. This was the regular running time. On one occasion, in 1898, America's speediest train made the 55½-mile run in 45 minutes, or at a rate of 74 miles an hour.

It does not become the sophisticated traveler of our present streamlined era to sneer at mile-a-minute runs made more than half a century ago. Abnormally high speed calls for a track that can stand the strain. When the old-time engineers went after a record they were pulling "coffee-pots" over 40- and 50-pound iron rails laid on badly ballasted tracks that fairly bristled with steep grades, sharp curves, fragile trestlework and innumerable flimsy wooden bridges. These same pioneers, even with nothing better than the primitive locomotives of the seventies, would have given their successors some real records to beat if they had felt under their drivers the beautiful main-line track which Harriman created in the late nineties when he reconstructed the Union Pacific.

Numerous theater-loving New Yorkers crossed the Hudson River on the last spring evening of 1876 and waited beyond the midnight hour to see the much discussed *Jarrett & Palmer Special* pull out of Jersey City on June first of that year at 12.53 A.M. Word had gone around that this private train, made up for a famous theatrical organization, was about to create a world's record. The average time from New York to San Francisco in the early seventies was between seven and eight days. The *Jarrett & Palmer Special*, according to the company's press agent, was out to chop that time in half. The six engines carefully picked to make this race for a record pulled one baggage car, one combination smoking and commissary car and one Pullman sleeper. This three-car train weighed 126 tons and carried thirty to thirty-five passengers. Most of the party, for whom through tickets had been purchased at $500 each, were actors. Their leading man was Lawrence Barrett, who frequently costarred with Edwin Booth in famous Shakespearean productions.

In addition to passengers, the private train carried eight bags of United States mail and an emergency supply of coal in sacks. This reserve fuel, stowed away in the baggage car, saved the engineers some unnecessary stops. It was just 9.29 in the morning of June 4 when the badly shaken-up travelers got out of the train at the Oakland water front. The *Jarrett & Palmer Special* had crossed the continent in 83 hours and 37 minutes. Various stops en route had cost the record-seekers 2 hours and 3 minutes.

This 3,305 mile run at a rate of speed equivalent to 40 miles an hour was, quite properly, a sensational achievement in its day. It stood unchallenged for thirty years. In May, 1906, E. H. Harriman ordered a special to take him back to New York from his relief work in behalf of San Francisco, stricken by earthquake and fire. The rail monarch was in a bit of hurry. He made the transcontinental trip from Oakland to New York in 71 hours and 27 minutes. In October, 1934, fifty-eight years after the *Jarrett & Palmer Special* blazed the way, the Union Pacific ran a streamlined train from Los Angeles to New York in 56 hours and 55 minutes. This

3,258-mile sprint from coast to coast in 3,415 minutes was 14 hours and 32 minutes better than the time Harriman made when he clipped only 12 hours and 10 minutes from a record created in 1876.

All major rail systems in the United States have stepped up their speed records in recent years. In 1928 only one or two passenger trains made complete runs at an average better than 60 miles an hour. Ten years later more than 900 runs totaling 56,000 miles called for an average speed better than a mile a minute. The Pennsylvania led the parade in 1938 with 12,432 daily miles. The New York Central was second with 11,712 miles. The Atchison, Topeka & Santa Fe, with two long-distance streamlined flyers, was third with 7,063 miles a day. These Diesel-powered fast passenger trains on the Santa Fe sprint 202.4 miles between La Junta and Dodge City in 155 minutes, which means an average speed of 78.3 miles an hour. The Union Pacific's *City of San Francisco* runs the 288.3 miles from Carlin to Sparks in 249 minutes, an average of 69.5 miles an hour. The Burlington's *Denver Zephyr* covers the 124.6 miles between Aurora and Galesburg in 96 minutes, an average of 77.8 miles an hour. The Union Pacific's *City of Denver* averages 80.3 miles an hour on the 95-mile run between North Platte and Kearney. This speed jumps to 81.3 on the 62 miles between Grand Island and Columbus.

Statistics of this type and the publicity accorded streamlined trains since 1934 have created a popular belief that Diesel-drawn flyers hold all speed records on

American and foreign railroads. It may surprise the average traveler to know that a steam locomotive in the deep South matched the best Diesel speed in 1901, and five years later a fast train in Ohio easily excelled the best time any streamlined train has ever made. Unfortunately, the Plant System did not have an official timer available on Friday, March 1, 1901, when a mail train on the Savannah, Florida & Western ran five miles in 2 minutes and 30 seconds, or at a speed of 120 miles an hour. This train, pulled by a 10-wheeler, bituminous-burning product of the Rhode Island Locomotive Works, included a mail car, a baggage car and a sleeping car in its hookup. It ran from Fleming, 24 miles south of Savannah, Georgia, to Jacksonville, Florida, a distance of 149 miles, in 130 minutes, or at the rate of 68.8 miles an hour. From the 69th to the 74th milepost the two-miles-a-minute burst of speed was developed. This record was attested by newspaper representatives, the train dispatcher's office, the Plant System's superintendent of motive power and a traveling engineer who rode in the cab. Nevertheless, because the run was not clocked with stop watches, this amazing feat is not written into American railroad speed records.

There can be no argument, however, about the sprint made on June 12, 1905, by a westbound Pennsylvania Railroad 18-hour flyer which covered 3 miles near Ada, Ohio, in 85 seconds. That meant running each mile in 28 1/3 seconds, or an average speed of 127 miles an hour. This smashed every record on any railroad in the world. It still stands against the best efforts of our fastest streamlined trains. An elimination of the Plant System's two-miles-a-minute claim will not help the Diesel publicists. That Pennsylvania run of 127 miles an hour was official. It was seven miles an hour faster than the top Diesel engine speed, and two miles faster than the 125 miles an hour to which the new electric steam turbines are geared. It has stood unchallenged for thirty-five years and may survive the best efforts of any railroad equipment now in existence. In addition, it is a consolation to every fast runner of the old school who mourns today the passing of the steam locomotive from its number one position in America's crack passenger service.

CHAPTER XXII

Open Throttles and Red Lights

The westbound, running late and with rights to the Springs, was clicking off miles at a speed that taxed track and equipment. The man up front, watching a 200-pound pressure drumming at the gauge, was in and out of reporting stations on a schedule that really deserved a modern roadbed. The full effect of the fast time he was making did not interrupt a cozy dinner for two in the private car *Nomad* which carried the taillights on this particular trip. While the heavy Pullman lurched against the curves in a series of vicious jerks and slews, the owner of the car and his only guest weighed the merits of turtle soup spiked with aged sherry, fresh venison steak cooked with mushrooms and a dry champagne of the proper vintage and temperature.

The host, a picturesque veteran of life in the West, was discussing a route to the Pacific. He knew his subject. He had mapped the right-of-ways for three transcontinental roads and supervised the first laying of rails into Denver. He had founded Colorado Springs, begun construction of the Rio Grande Western from Denver to Salt Lake City, developed the National Railways of Mexico and divided a million dollars between old employees when, after selling the Denver & Rio Grande to the Gould interests, he retired to "Glen Eyrie," a Tudor castle he had built behind the Garden of the Gods. His guest, a fairly young bank president, had migrated to Colorado a quarter of a century before and risen from shopkeeper to capitalist. Now head of the Denver & Rio Grande, he was weighing the possibilities of a new rail project that would put his adopted city on a main line to the coast. This ambitious planner was David H. Moffat, who gave his name and the last years of his life to the Moffat Tunnel. His host was General William J. Palmer, who had fought in the Civil War and headed the cavalry unit detailed to capture Jefferson Davis. These military exploits, of course, were merely interludes in the busy life of a pioneer railroad builder.

"It will cost a lot of money," General Palmer observed, refilling the glasses, "but you can take a line through the Rockies that will beat the best time the Union Pacific can make between Cheyenne and Ogden. Moreover, as you say, Denver will never be a real city while she sits at the end of a shuttle."

The abbreviated railroad that inspired this derogatory comment was the Denver Pacific which Moffat had helped to finance. It was built by Denver citizens to establish a connection at Cheyenne with the Union Pacific. When this contact was created in 1868 the Kansas Pacific, under Palmer's supervision and stranded for lack of capital, was floundering around on the prairies about 200 miles east of Denver. The federal government, with a substantial land-grant interest in the crippled line, authorized an assignment of Kansas Pacific rights to the new Denver Pacific. Washington's arbitrary ruling completely upset General Palmer's plans, which contemplated a straight line to Pueblo and a twist to the north into Denver. He wanted a tight control of the Arkansas valley and proper facilities to tap Colorado's fabulously rich mining country. He resigned when his strategy was overruled and organized a railroad of his own—the old narrow-gauge Denver & Rio Grande, now headed by the man across the table.

This was the preface to a fascinating story of the past which Palmer told Moffat in the summer of 1885 as they rode in the *Nomad* from Denver to Colorado Springs en route to Glen Eyrie. He described the Rio Grande's extension to Leadville, the arrival of his first train over the new rails, and a parade down the main street through a mob of 30,000 wildly jubilant miners. President Ulysses S. Grant and General Palmer had headed this procession in an open barouche drawn by four superb black horses. Horace A. W. Tabor and some of his fellow mining kings added a characteristic touch to the festivities by pouring handfuls of gold dust over the glossy backs of the beautiful animals as a proof of Leadville's prodigality. Their recklessness had a firm foundation. The amazing mines these pioneers began to exploit long before any railroad planned a line to Leadville subsequently pumped gold and silver worth two or three billions into national storehouses for our mineral wealth. Palmer told Moffat why he had begun making the Denver & Rio Grande a standard-gauge road in 1881, and outlined his ideas about the Rio Grande Western which he organized in the following year. The pioneer past and the railroad future were discussed from every angle in the next few days. Consequently, when the new Rio Grande president returned from his Glen Eyrie visit his ambition to build from Denver to San Francisco had become something akin to an overpowering obsession.

David H. Moffat was twenty-one years old when he first landed in Denver and opened a stationery store. In 1867 he was made cashier of the First National Bank and treasurer of the proposed Denver Pacific. In 1876 he was appointed receiver for the Kansas Pacific. Eight years later he was the head of his bank and president of the Denver & Rio Grande. In the following year he began building the Denver & New Orleans, afterward known as the Colorado & Southern, and completed the change of the Rio Grande from a narrow- to a standard-gauge road. He was sixty-three years old, however, before he found it possible to take a first step in the venture he had discussed while sipping champagne in General William J. Palmer's private car more than a quarter of a century before. In 1902 he organized the Denver, Northwestern & Pacific, now known as the Denver & Salt Lake Railway. He capitalized the new road at $20,000,000 and negotiated for a connection in Utah with the Los Angeles & Salt Lake which Senator William A. Clark had built over the Great American Desert as a short line to the Pacific. This meant an outright invasion of the transcontinental field, and could produce only one result. A war to the finish against Moffat was promptly declared by E. H. Harriman and George J. Gould.

Moffat's first objective for the Denver, Northwestern & Pacific was Salt Lake City, which, like his own Colorado metropolis, had been marooned in the sixties by the Union and Central Pacifics. His surveys called for exceedingly difficult construction. The first 60 miles out of Denver deducted $3,600,000 from the new road's capital. The next 35 miles through the foothills cost $100,000 a mile before the first tie was laid. One 11-mile stretch through the Rockies required twenty-nine tunnels, and one of them was 3 miles long. In 1904 the Moffat road reached Corona, at an altitude of 11,660 feet. At this point the engineers in charge of construction voiced their fear that the vicious snowstorms which cursed this division would stall all traffic in winter months. Moffat refused to accept so gloomy a verdict. He purchased the Burlington's old Gore Canyon right-of-way, an absolute necessity for his road to the west. He completed the laying of rails through the pass in 1907, but this accomplishment brought his activities to a halt. He had sunk every cent of his private fortune in his battle against the Rockies. In this emergency Colonel D. C. Dodge, who had been General Palmer's right-hand man, headed a Denver group which raised an additional million and a half to back the drive to Utah. In the following year the new line was pushed to Steamboat Springs. Moffat knew he had exhausted the last possibility of help from the West, so he turned once more to the East. He found himself up against a familiar stone wall. He was blocked by the equivalent of a shotgun quarantine. Death ended the struggle. The game old lone-hand player passed away at the Belmont Hotel in New York on March 18, 1911, while making a final fight to carry his rails into Salt Lake City.

One of Moffat's pet dreams was a 6-mile tunnel through the very heart of the Rockies. Shortly after his death the State of Colorado took over this task. The point selected for boring was just north of Berthoud Pass. This project would eliminate the snow hazard which had barred all routes through the Rockies from Denver to the coast. The old opposition rallied once more to the attack, the state tunnel plan was defeated and the Moffat road went into receivership. All subsequent attempts to complete the line into Salt Lake City were futile until, on June 3, 1921, the Arkansas River overflowed its banks and inundated Pueblo. When the flood victims called loudly for state help, Denver saw a chance for a showdown. The Pueblo proposal was held up by a metropolitan vote in the state legislature until an appropriation for a hole through the mountains was included in the conservation measure. The amended bill was rushed into law and a $6,700,000 bond issue was promptly floated. In the summer of 1923 work was begun on the 6.1-mile Moffat Tunnel, which chopped 173 miles from the rail distance between the Atlantic and the Pacific and lowered the transcontinental grade from 3 to 2 per cent. It was a heartbreaking engineering feat. The undertaking required five years of day and night work and cost more than $16,000,000, but on February 27, 1928, the first train out of Denver rolled through the Moffat Tunnel.

The original plan called for an independent line to the west between the tunnel and Salt Lake City. When the estimates for this extension were submitted, the cost seemed prohibitive. A compromise was proposed and accepted. A 38-mile line to connect with the Rio Grande Western was hurriedly constructed, and on June 16, 1934, this Dotsero cut-off was opened for traffic. Just twenty-three years after the death of the planner, the Burlington and the Rio Grande Western began running streamlined trains through mountains which all engineers in Western history had pronounced an impregnable barrier to a railroad invasion. The Moffat fight was won.

The dawn of the twentieth century inspired numerous and decidedly ambitious plans for the aggrandizement of railroads. While Moffat was constructing his costly route through the highest mountains in the West, a rival builder on the other side of the continent was marshaling millions to conquer the most important river in the East. When Alexander J. Cassatt became president of the Pennsylvania Railroad in 1899 he faced two major problems. Rate wars and rebates were cutting deeply into profits from freight transportation, and his eastbound passenger trains stopped at the Hudson. For a year or more the new head of America's most powerful railroad sat in his Philadelphia office and studied statistics which proved that his northern rival, the New York Central, was picking up the cream of the transportation business in and out of New York. Although a cautious executive, deliberate in his judgment and steeped in conservatism, Cassatt had the requisite courage for big undertakings. He created the Community of Interest device, under which the Pennsylvania and other big systems bought heavy blocks of stock in weaker roads and forced the little fellows to eliminate unfair and costly traffic discriminations. With this reform to his credit, he swung all the Pennsylvania's power and prestige into a fight for an adequate entrance to New York.

Cassatt's original plan was based on a belief that all roads with terminals on the Jersey side of the Hudson should co-operate in digging a tunnel under the river and the construction of a commodious union station in the heart of America's metropolis. He discussed this idea with the various rail managements, but found himself addressing an unsympathetic audience. There was no passageway under the Hudson in 1901, notwithstanding the fact that preliminary experiments had been made as far back as 1874. The Cassatt scheme was too daring for the officials of other roads. They flinched from the terrific cost involved, and many of them questioned the feasibility of the undertaking. When all arguments proved futile, the man from Philadelphia revised his program. He checked the current money market, compared his road's operating income with all near-term obligations and announced a courageous decision. The Pennsylvania, he said, would dig its own tunnel.

Cassatt's legal department, contending that the middle of the river constituted a true state line, recommended the creation of two subsidiary railroads. One, chartered by the State of New Jersey, could build east to a line under the exact center of the Hudson, while a New York corporation worked west to the meeting point. On February 13, 1902, the Pennsylvania, New Jersey & New York Railroad was authorized to lay rails from Jersey City to the middle of the river. On April 21, 1902, the Pennsylvania, New York & Long Island Railroad was granted permission to extend the new line across Manhattan Island and under the East River to the upper tip of Long Island. Work was begun in the fall of 1903 under the direction of a special board of engineers, and was continued without halt or delay until the first train moved under the river and into a palatial station in midtown New York on November 27, 1910. The Pennsylvania's board of directors allotted $100,000,000 to the Hudson River project, and while this money was being spent at the eastern end of the system Cassatt rebuilt practically all of his main line between Philadelphia and Pittsburgh.

The Pennsylvania throughout the ninety-odd years of its history has spared neither brains nor money in an unceasing effort to improve roadbed and equipment. The current program for electrifying the entire system was continued in the worst years of depression, and unquestionably will go forward until the road's last steam locomotive is sent to the discard. This farsighted policy and the valuable territory acquired by John Edgar Thomson have kept the road fully abreast the nation's swift growth. In the twelve months of 1852 the Pennsylvania handled 70,000 tons of freight, or a little more than 1,300 tons a week. In 1923 it moved 28,200 tons every hour. When the road was four years old it created an imposing record of 437,090 passengers carried in a single year. In 1920 it carried 191,000,000 passengers in 52 weeks, not including the Long Island commuters. With these figures available for study, it is probable that at least one or two railroads regret exceedingly today their refusal in 1901 to join Cassatt in that dive under the Hudson.

And yet, curiously enough, Cassatt and his successors overlooked some perfectly obvious precautions. Their sins of omission produced problems that are becoming increasingly serious. American railroads, as a matter of fact, have repeatedly permitted the parade to pass them. The biggest lines in the East continued to use gas for illumination long after the Atlantic Coast Line in the South and almost every big carrier in the West had shifted to electricity. Day coaches on even the best passenger trains in America retained their out-of-date, stiff, uncomfortable, hot and frequently dirty seats while automobile busses, equipped with easy lounging chairs, were fighting them for traffic. They required several days for the transfer of freight brought to their stations which highway trucks offered to haul overnight on a door-to-door pickup plan. An alert, aggressive and well-advertised campaign to capture both non-Pullman passengers and less-than-carload freight shipments, even if unprofitable at the time, might have stopped public roads competition in its tracks long before it developed into a serious menace.

Passenger traffic managers specialized on crack trains with costly Pullman equipment, and ignored the records of English roads that provide second-class accommodations which are quite as good as the first. They took no steps to check the drift of short-distance travelers from uncomfortable day coaches to privately owned automobiles designed by experts on low-cost luxury. They elected to stand pat at the beginning of the century when they enjoyed almost a complete monopoly on transportation and were seeking investments for surplus funds. The first real steps to fight trucks and busses were delayed until a major depression had crippled their resources and the competition along interstate highways had become powerfully entrenched. In the last few years the major roads have begun to extend air conditioning to ordinary day coaches and to provide comfortable seats for holders of second-class tickets. A few pioneer managements are serving popular-price meals in cafeteria cars, and every big road in the country has put long-haul freight trains on really fast schedules. It is within the limits of possibility that a recapture of temporary prosperity may induce some of the lines that operate through populous areas to provide swift air-conditioned units on convenient schedules for a final battle to recover lost ground. The Diesel locomotive has been well advertised as a speed producer for limited trains. It may have a more important function to perform as a switching engine in busy terminals and as a friend in need to harassed automobile-driving commuters now wasting valuable time and energy in quest of a parking space.

Wide open spaces and the natural optimism of the West have stimulated railroad initiative in the territory covered by transcontinental trains. Just ten years after Cassatt began boring under the Hudson, an early student of streamline train possibilities turned his back on the Pacific and became a citizen of St. Paul. The Great Northern took Ralph Budd away from the Spokane & Inland Empire Railroad in 1913 and made him its chief engineer. In 1920 he became president of the road. His eleven years' administration was an era of vigorous progress. Its crowning achievement was the creation of the Cascade Tunnel which was opened for traffic on January 12, 1929. This $25,000,000 project cut nine miles from the St. Paul to Seattle run, wiped 502 feet from the worst grade along the Great Northern right-of-way and eliminated the use of helper locomotives for passenger trains crossing the Cascade Divide. Budd's engineers bored through almost 8 miles of solid granite. Their survey lines were carried over a mountain 3,500 feet high as a guide for cuts, each of which ran approximately four miles from the mouth of a tunnel to a blind-end meeting point. And yet, when the blasters met in the underground darkness, their lines were only three-quarters of a foot apart and the difference in their levels was exactly three inches. The immediate results from this remarkable engineering feat thoroughly justified Jim Hill's reiterated sermon on the vital importance of economy and efficiency in the operation of a railroad.

On December 31, 1931, Ralph Budd resigned as head of the Great Northern to assume the presidency of the Burlington. Twenty-eight months later, on Monday, April 9, 1934, the *Zephyr*, first Diesel-engined, completely streamlined steel train in American history, was given a trial spin in Pennsylvania and a few months later inaugurated a regular run between Kansas City, Lincoln and Omaha. When the value of the new service was demonstrated, the *Zephyr Twins* appeared on the roadbed between Chicago, St. Paul and Minneapolis and made the 882-mile round trip at an average speed of 66.3 miles an hour. On October 28, 1935, the *Mark Twain* began daily round trips between Burlington and St. Louis via Hannibal, Missouri, the birthplace and boyhood home of the writing genius for whom this fourth Burlington streamlined train was named.

The Burlington was first in the field with an all-steel streamlined streak, but it did not sponsor the American debut of the streamlined passenger train. That distinction was earned by America's first transcontinental railroad. While the Budd plant in Philadelphia was working full speed on the original *Zephyr*, the Pullman Company put the final touches on a Diesel-powered streamlined aluminum train and handed it over to the Union Pacific. This three-unit, articulated racer, identified merely as *No. M. 10,000*, was shown to the public on February 12, 1934, just fifty-six days before the *Zephyr* took its bow for a 100-mile round-trip run between Philadelphia and Perkiomen Junction. After a tour of twenty-two states and an exhibition at the World's Fair in Chicago, the number one streamliner was placed in regular Union Pacific service between Kansas City, Missouri, and Salina, Kansas. Eight months later a second train, the *M. 10,001*, set a new world's record. It made the 3,258-mile run from Los Angeles to New York in 3,415 minutes. The 508 miles between Cheyenne and Chicago were covered at an average speed of 82.7 miles an hour, but on some stretches of particularly fine roadbed the graceful flyer tossed off miles at the rate of two a minute.

The Diesel engines for the new trains burned a distillate instead of plain oil. They were equipped, of course, with the "dead-man control," a device that requires continued pressure of a hand or a foot on an attachment that governs the air. If this pressure is removed by death or accident, the brakes on every unit of the train are automatically applied. In the winter following its initial run the *M. 10,001* was lengthened by the addition of a seventh unit, and a 1,200 horsepower Diesel was substituted for the original 900 horsepower engine. On June 6, 1935, the remodeled train was christened the *City of Portland* and put on a regular run between Chicago and Oregon. The fast schedules set up for this new equipment appealed to the public and passenger traffic jumped. The Union Pacific's run from coast to coast in 56 hours and 55 minutes created a sensation. So, too, did the Burlington's first burst of speed from West to East. Early in the morning of August 26, 1934, the *Zephyr*, equipped with a 660-horsepower, two-cycle Winton Diesel, left Denver at four minutes after five o'clock mountain time and arrived in Chicago that evening at nine minutes after seven o'clock Central Standard Time. The distance was 1,015 miles. The time was 785 minutes. An average of 77.6 miles an hour was maintained throughout the run, and not a single stop was permitted between the foothills of the Rockies and the shores of Lake Michigan. This was exactly twice any previous non-stop distance ever covered by any train.

Other records followed in quick succession. On May 17, 1937, the streamlined Santa Fe *Super Chief* averaged 60.5 miles an hour from Los Angeles to Chicago. The Burlington's *Zephyr* came back with a run from Denver to Chicago in 732½ minutes, or at a rate of 83.33 miles per hour. Spurts of speed between 100 and 120 miles an hour soon became routine incidents in the daily activities of the silver streaks. As a natural consequence, carrier after carrier heard the call of the Diesel and filed imperative rush orders for this new type of train. The Union Pacific and Burlington streamliners were soon followed by the Santa Fe's *Super Chief*, the Boston & Maine's *Flying Yankee*, the New Haven's *Comet*, the Gulf, Mobile & Northern's *Rebel*, the Rock Island's *Rocket*, the Illinois Central's *Green Diamond* and various other bids for the patronage of passengers with a passion for speed. And then, while the Diesel was still breaking into the news, along came the turbine on wheels.

The new giant, built to order for the Union Pacific, is a General Electric creation. The two units of this big steam-electric engine develop 5,000 horsepower and a speed of 125 miles an hour. Forced circulation boilers call for the cheapest grades of crude oil. The condensation of steam for a re-use of the water permits the big locomotive to run from 500 to 700 miles without a stop for liquid refreshments in any form. Transatlantic liners and giant power plants demonstrated the merits of this engine when the Diesel was unknown and the conventional locomotive was merely approaching the peak of its power and speed. Its roadbed possibilities were not given a test until 1939. It remains to be seen what this shift of the turbine to wheels will mean to the railroads of tomorrow.

CHAPTER XXIII

Whiskers on the Rails

In the early morning hours of an otherwise uneventful June day in 1858 a Pennsylvania farmer and the wife of an Iowa agriculturist happened to concentrate simultaneously on the get-rich-quick possibilities of an infant industry. They approached the rail potentialities of their period with equal enthusiasm but with somewhat opposite points of view. The Eastern student of economics, voicing a seductive call to his easily persuaded hogs, scattered handfuls of corn along a stretch of track that adjoined his homestead. He knew from practical tests that pressed pork created by the driving wheels of a locomotive commanded a higher cash value per pound in a settlement out of court than the prevailing price on the hoof in any conventional market. Hence his ambition to associate food with crossties in the mental mechanics of his hungry drove.

Hens, not hogs, were the chief actors in the rival rural drama. The lady in Iowa could hear in fancy the humming of main-line rails as she gathered a final round-up of freshly laid eggs for her weekly trip to a near-by future metropolis. She was accumulating funds for the purchase of stock in a much discussed steam-road project. The approach of the first train across the prairies would, as all her neighbors conceded, bring prosperity to the Middle West and a fortune to pioneer railroad investors. She was content to forgo present pressing needs to ensure unlimited affluence in her declining years.

These two activities in the middle decade of the nineteenth century, while geographically far apart, were twin phenomena in the rise and fall of the American railroad empire. The exploitation of small stock buyers by crooked promoters of mythical right-of-ways was an effective stimulant to the far-flung farm-belt phobia against railroads that eventually led to legislative activities which have strangled an industry. The exploitation of railroads by a few dishonest owners of livestock paved the way to a highly profitable avocation for unscrupulous stock gamblers, venal legislators and rail potentates even more corrupt than the politicians on their pay rolls. The first half-century of American rail history does not present a particularly edifying picture.

In the earlier days of the industry the railroads themselves were the chief offenders. They bought up prosecuting attorneys and judges, they bribed lawmakers and newspapers, they gave secret rebates to important shippers, they adopted the "public be damned" policy credited at a later date to the head of the Vanderbilt System. Swollen with power and primarily interested in profits, they played the dictator game and ignored the vineyards where grapes of wrath were ripening into purple. The inevitable consequences were the Granger movement, the passing of public utility laws by a majority of the states, floods of antirailroad oratory in Congress and the birth of the Interstate Commerce Commission.

This federal agency for the control of railroads was created by Congress in 1887. The legislative measure that brought it into existence, obviously modeled on the English Railway and Canal Act, merely granted powers to prohibit unreasonable and discriminatory rates. Railroad managements, alert to the menace of disastrous rate wars and secret rebates, were inclined to welcome this mild form of federal supervision. It is true that the new law included a long-and-short-haul clause for which practically all inland cities had long clamored, but the prohibition against local charges higher than through rates was softened by the qualifying phrase, "under substantially similar circumstances and conditions." Thus, a railroad operating between Florida and New York in competition with ships might continue to accept dock deliveries from Cuba and transport tropical fruits to Northern markets at a lower rate per mile than the tariff devised for south Florida growers. A wandering road between distant cities could still meet the lowest rates charged over a direct right-of-way. Moreover, the new Interstate Commerce Commission lacked actual police powers. It was compelled to turn to the courts for an enforcement of its orders. In the first sixteen years of its history, the Act of 1887 was almost entirely without teeth.

The teeth were inserted in 1903 when Congress passed the Elkins Act, which made any deviation from published tariff rates a criminal offense. This new law became even more drastic three years later when an amendment provided prison sentences for any railroad official or shipper who granted or accepted a rebate. The amendment further prohibited the issuance of railroad passes to anyone not included in a rigidly restricted list of beneficiaries. More important, the Interstate Commerce Commission was given authority to establish maximum rates.

If a halt on railroad legislation had been called in 1906, after passage of the various amendments to the original Elkins Act, it is reasonable to believe that the railroads would have worked out their own salvation under adequate federal supervision. It was subsequent congressional tinkering with the Interstate Commerce law that spelled disaster to the carriers. In 1910 the Interstate Commerce Commission was authorized to suspend for seven months any proposed change of rates. If at the end of this period the commissioners had not reached a decision, the carriers were frequently requested to extend the seven months' suspension for further investigation. Such a request was not easily refused. These long delays were costly as well as exasperating. A railroad management, facing the need to meet competition by water or motor, was forced to mark time for six months or a year while Washington officials deliberated. When a delayed decision was finally handed down, the psychological moment had passed. An alert and unhobbled competitor usually controlled the traffic situation by the time the railroad rate reduction was approved.

It was in 1910, also, that the "under similar circumstances and conditions" phrase was eliminated from the long-and-short-haul clause of the Interstate Commerce Act. This was a body blow to the railroads. It was a stimulant to various rival transportation activities, but it failed to prove an unmixed blessing to cities like Spokane, Washington, whose voters had led the fight against tidewater preferential rates. Heavy shipments were diverted to the docks and freight traffic through the interior faded from the rails. The resulting reduction in train service on transcontinental roads actually cost the cities along the line substantial sums of money. Before the end of another decade innumerable inland communities revised their theories and began violent agitation for a repeal of the clause that covered the long and short haul.

From 1910, when antirailroad legislation reached the peak of oppressiveness, down to the World War period, when the government took over the carriers, the most colorful industry in American history traveled downgrade with slipping brakes. An interlude of temporary prosperity in the hectic blue chip era over which Calvin Coolidge presided merely set the stage for the transportation problem of today.

The United States, as a nation, was a mere century and a half old when world-wide depression swept American railroads into a financial smash-up from which they have not yet emerged and which generates widespread doubt of their ability to survive the bludgeonings of the future. Granted that they still have the equipment to play a major role in transportation activities, there is no guarantee that they are destined to hold their own in the coming fight for existence. The steam roads forced their way into a picturesque wilderness, brought the mixed blessings of civilization to an inland empire ruled by Indians, eliminated covered wagons from the prairies, drove floating palaces from the Mississippi and wrote into history a romance that may some day fascinate archaeologists assigned to the ruins of Chicago. Today, unfortunately, this giant of a pioneer period is turning tired eyes toward government anesthesia. American sentiment is overwhelmingly opposed to federal operation of the carriers, yet American ingenuity has failed to indicate a right-of-way to a better fate. The once fair-haired child of a colorful saga has now deteriorated into an economic problem.

"What's wrong with the railroads?"

This question, repeatedly asked in the past ten years, has elicited vigorous replies that test the extremes of contradiction.

"Overcapitalization," is the confident answer contributed by representatives of labor. "The carriers have an indefensible debt burden with fixed charges in excess of $660,000,000 a year."

"Overcapitalization," echo various statesmen in Congress who are not altogether deaf to the voice of the voter. "Put the roads through the wringer and cut their debts in half."

The excessive debt argument is in itself a soothing theory. Unfortunately, it does not tally with the facts. If we could reduce the railroad problem to a single word, there would be reason to hope for a clear track ahead.

As it happens, however, innumerable disturbing facts and figures are available to cold-blooded statisticians.

There are 1,179 railroad companies of all classes in the United States. About 12 per cent of this total are catalogued as "Class One Roads." Suppose we take a look at the figures reported by this group for 1938. They collected in these twelve months a gross revenue of $3,565,490,753. Almost half this sum, or $1,746,140,636, was disbursed in wages. Taxes totaled $340,781,954. This left less than a billion and a half for all other expenses, including the item of interest on which labor leaders and congressmen rest their overcapitalization charge. As a matter of fact, the fixed charges due in 1938 were $614,-410,851, plus $12,541,392 "if earned", or a possible total of $626,952,243.

The total amount of money invested in American railroads is about $25,000,000,000. The total face value of railroad bonds now outstanding is approximately $11,-000,000,000, or less than a 50 per cent mortgage. Squeezing the carriers through the wringer might bring the fixed debt down to a considerably smaller percentage of the total investment, but it would not solve the railroad problem. Overcapitalization is not the answer.

There is, for example, the case of the Southern Railway. This carrier's interest requirements for 1938 totaled $13,760,954, or $1,146,746 per month. The road's net operating income for the first six months of the year was only $3,569,588, or a little more than half the interest requirements. That fact probably gave aid and comfort to the wringer advocates. The Southern, of course, has never failed to pay interest on its bonds, but an indefinite continuation of the early 1938 earnings unquestionably would pave the way to default. In the second half of the year, however, the Southern showed a net operating income of $10,773,977. This was $3,893,500 above total interest requirements. As a matter of statistics, the road's net operating income for the full year was $14,343,565, or only a few hundred thousands less than the interest and rental figures for 1938.

Politicians with an eye on the three million American citizens who depend on railroads for a living favor high wages and a low funded debt. Government operation of the carriers in the World War period brought swift pay-roll increases. In 1916 the average compensation paid to railroad employees was 28.3 cents an hour. In 1938 it was 75.0 cents. On an annual basis that would represent an income jump from $892 a year to $1,859. This does not mean that railroad men are extravagantly overpaid. They are loyal, industrious, exceptionally skillful and extraordinarily intelligent workers. Consequently, the politicians can easily justify their generous attitude toward wages. They cannot, however, defend a persistent policy that makes these wages an almost hopeless burden for the carriers. The government tells the railroads how much they must pay out to run their trains and how little they may take in for the service they render. As an accompaniment to this strait-jacket policy, the lawmakers have milked the roads to help meet the high cost of government. Total railroad taxes jumped from $44,000,000 in 1900 to more than $340,-

781,954 in 1938. In 1916 the carriers deducted for taxes four cents and four mills from every dollar of gross revenue and thirteen cents and one mill from every dollar of the net. In 1935 these payments climbed to six cents and nine mills on the gross, and thirty-two cents and two mills on the net. Railway officials are probably conservative in their estimate that they pay out nearly $700 a minute for federal and local taxes.

No economy scheme devised by railway managements can lighten this heavy and constantly increasing load. Within a very few years the carriers undoubtedly will find tax payments more burdensome than any conceivable interest disbursements. The three or four hundred millions a year that might be saved by cutting all railroad bonds down to fifty cents on the dollar would not offset the tax increases imposed on railroads since the turn of the century.

Labor has fared better than investors since 1929, yet the railway employment statistics of recent years are highly discouraging. In 1916 there were 1,647,097 names on railway pay rolls. In 1938 the total was only 939,171. This cut was the result of managerial efforts to avoid the menace of bankruptcy. Labor-saving devices and a persistent speed increase were born of rigid economy demands. The average number of freight cars per train jumped from 38½ to 48.1 between 1921 and 1938, and the gross ton miles per freight train have increased from 16,500 to 31,138. Simultaneously, both freight and passenger schedules were speeded up approximately 50 per cent.

The resulting savings in operating costs in this seventeen years' period of experimentation were offset by a 23 per cent decline in freight and a 38 per cent drop in passenger traffic receipts. Thus, in 1938 an analysis of income and outgo showed no improvement in the railroad picture. Forty-six and one-half cents of every dollar received went direct to labor. Another deduction of twenty-two cents and six mills was allotted to the purchase of fuel and other supplies in which labor cost was a substantial item. Taxes took a toll of nine and one-half cents. Rentals and similar essential expenditures wiped out another ten cents and nine mills. This left ten and a half cents for all other railroad costs, including bond interest and a few scattered dividends. That is why investors have received in recent years a return of about 2 per cent per annum on the twenty-five or more billions poured into roadbeds and equipment since 1828.

Competition, some of it decidedly unfair, has flourished at the expense of the carriers since government operation died a lingering death nearly two decades ago. Approximately $19,000,000,000 went into railroads from the day of their birth in the Andrew Jackson era to the final year of the Woodrow Wilson administration. Nineteen billions was unquestionably a substantial investment in a single industry. Nevertheless, an even larger sum was allotted to transportation in the next twelve years. Pipe lines for oil and gas were laid at a cost of half a billion. A larger sum was appropriated for the deepening of rivers and harbors. Public highways and street improvements took more than a dozen billions.

The carriers spent between six and seven billions on roadbeds and equipment that had deteriorated rapidly under the World War strain. Thus, in a little more than a decade of the activities that followed the Treaty of Versailles, a greater amount of money was contributed to transportation facilities than the total sum invested to build America's railroads and maintain them through the first ninety years of their history.

The giant share of these expenditures built up disastrous competition for the carriers. Good roads, built at public expense, diverted passenger traffic to automobiles and short-haul freight to privately owned trucks. Improved river and harbor navigation gave birth to government-owned and tax-free barge lines handling heavy shipments at rates the railroads could not afford to meet. Government subsidies encouraged the development of air travel at speeds beyond the wildest possibilities of rail locomotion. Ironically enough, the heavy federal and local taxes paid by the carriers contributed substantially to these formidable factors in the steady decline of railroad income.

Railroads, privately owned, have built and maintained their own right-of-ways and terminal facilities. Competing trucks operate on highways and streets maintained at public expense. Airplanes, taking passengers from the slower trains on which their shadows are cast, fly through free air using beacons, radio beams and weather reports provided at the expense of the taxpayers and land a definite percentage of their passengers in municipal airports. Tax-free barges, navigating channels the carriers helped to dredge, advertise cheap water rates to lure inland shippers from railway freight terminals. An added touch in this unfair competition is the fact that railroads must either pass along to their patrons the true cost of transportation or take their losses from the hides of investors who hold their stocks and bonds. The hidden costs of motor and water competition are, of course, absorbed by the taxpayers.

Rail transportation was the first major American industry accorded the doubtful advantages of government supervision. The adventures of the carriers under Washington's guardianship do not reflect credit on the economic astuteness of the nation's lawmakers. The punitive measures enacted in 1910 were followed by a series of almost incomprehensible legislative blunders. The much-discussed Valuation Act and the Recapture Statute do not require analysis. They became merely new legal methods for the persecution of railroads. They accomplished nothing beyond costing the public as well as the carriers vast sums of money, and are now decently interred in a cemetery that is filled to overflowing with the cadavers of absurd legislative enactments.

The Transportation Act of 1920 was predestined to failure. It attempted to bring about obviously desirable consolidations which the federal government had forbidden in former years. It called for steps along the path blazed by Harriman when he merged the Union Pacific and Southern Pacific, and followed by Hill when he welded the Burlington, Great Northern and Northern Pacific into a logical railway system. These activities, it will be recalled, led to the long-drawn-out war that ended with the smashing of the Northern Securities Company and made E. H. Harriman the official villain of Theodore Roosevelt's "Square Deal" administration. The Emergency Railroad Transportation Act of 1933 was another friendly gesture that led to nothing.

Everyone, including members of Congress, realizes the essential need for rail consolidations and the elimination of obsolete roads. Progress in this direction, unfortunately, faces powerful political opposition. State governments are against the plan because these reforms would reduce tax receipts and divorce various straggling communities from the benefits of train service. The beautifully organized Railroad Brotherhoods, with good friends in Washington, are equally antagonistic. They know, of course, that a comprehensive regrouping of the carriers would throw an army of skilled workers out of employment.

Aside from politics, there are economic considerations that enter into the picture. The more powerful railroads, still able to hold their own in the transportation struggle, have no desire to take over hopelessly weak rivals. They prefer the evils they know to an extension of activities into doubtful territory. Elimination of competition might be achieved at a price they do not care to pay. If the strong roads could pick and choose from the wreckage and dodge all responsibility for the men thrown out of employment, their attitude would change. In the present state of affairs, they have no ambition to load profitable lines with trackage that is not worth salvaging and should be junked. Bitter experience has taught them that suitable obsequies for an obsolete right-of-way seldom escape the interference of politicians with an inhibition against a decent burial of the dead.

If under the stress of necessity this government ever takes over the carriers, the cost of ownership will be borne by the taxpayers. An imposing home for a new government department would be built in Washington, a new cabinet appointment would be available to successful presidential candidates and a fresh army of government job seekers would camp on the doorsteps of state representatives. Instead of contributing to government income the business of transportation would create deficits for the federal budget. And such a step might easily set a precedent for government ownership of telephone, telegraph and radio communication. Such a prospect is not particularly pleasing to anyone familiar with the railroads and telephones of older and more patient nations.

If government ownership is to be averted, a new deal for the railroads must be worked out with government sympathy and possibly government assistance. Competition must be controlled and taxes must be equalized. A dozen well-integrated transportation systems could easily handle all present needs. An ideal arrangement would give each unit complete traffic facilities. This would mean heavy freight trains for long hauls and light passenger trains for dense populations, airplanes for swift mail and passenger service between distant cities and bus and truck connections through small communities to feed the parent lines. It would also mean new jobs or pensions for the involuntary victims of a genuine consolidation.

The ultimate fate of American railroads hangs in the balance. After a feeble spurt of prosperity in the noon days of the New Deal, the index of carloadings dropped to dangerous lows. In the fall of 1939 a mild domestic recovery and a jab in the arm from the war abroad combined to snatch the corpse from legislative, labor and legal morticians. Freight activities climbed more than 30 per cent in a period of weeks to new highs for the depression years. Brisk orders for rails and equipment gave aid and comfort to the makers of heavy goods. This rally, like the apparent convalescence that followed the era of government operation, is as deceptive as the flush on the face of a tubercular patient. Expert diagnosticians see no substitute for a major operation.

There is, however, one ray of encouragement in the picture. Popular prejudice against the carriers is slowly yielding to an attitude of sympathy for a stricken industry. The American public is sentimental. It recalls with pride the pioneer days of the nation's youth when frontier hardships faded before the rush of the locomotive. It admires the fighting spirit of operating executives who, in the very shadow of bankruptcy, are now stepping up speed, service, efficiency and equipment to the highest standards of mainline history. This new mood may prove an important factor in future attempts to solve the railroad problem. The end of the down grade is not in sight, but there are still romance, color and drama in the story of the rails.

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